

Water and Empire in the *De aedificiis* of Procopius

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The work entitled *De aedificiis*, *Ktismata*, or *Buildings* by Procopius of Caesarea—written ca. 559, during the latter years of the emperor Justinian's reign (527–65)¹—bears witness to an evolving imperial

1 The most recent translation, with invaluable commentary, notes, and indexes, comes from *Constructions de Justinien I^{er}* (*Περὶ κτισμάτων/De aedificiis*), trans. D. Roques, *Hellenica Testi e strumenti di letteratura greca antica, medievale e umanistica* 39 (Alessandria, 2011), but all quotes and (parenthetical) citations of Procopius herein come from the Loeb editions: *Buildings*, trans. H. B. Dewing with G. Downey, Loeb 343 (London, 1940); *Secret History*, trans. H. B. Dewing with G. Downey, Loeb 290 (London, 1935); *Wars*, trans. H. B. Dewing with G. Downey, Loeb 48, 81, 107, 173, and 217 (London, 1914–28). Citations use the enumeration of sections found in the Dewing translations, which corresponds to those used in J. Haury's edition, *Procopii Caesariensis Opera Omnia*, rev. G. Wirth, 4 vols. (Leipzig, 1963–64), in addition to those in the recent translation of Roques.

I should note at the outset that my argument has little to do with lingering questions of the date of Procopius's composition, many of which revolve around the statement that he wrote the *Buildings* during the construction of the Sangarius Bridge (5.3.8–11), dated by Theophanes to 559/60 (Theophanes, *Chronographia* AM 6052, trans. C. Mango and R. Scott [Oxford, 1997], 344); for a review of the arguments and a conclusion in favor of the traditional date of ca. 554 see G. Greatrex, "The Date of Procopius' *Buildings* in the Light of Recent Scholarship," in *Estudios bizantinos* 1 (2013): 13–29. Both dates are, in any event, after the traditional date for the composition of the *Secret History* (549–51). There is also the very important question of the short and long recensions of Procopius: my work here is concerned principally with the long recension. Montinaro has persuasively argued that the 1531 Rhenanus edition of the *Buildings* is an earlier draft rather than a later redaction, with some important differences that are nevertheless limited to the

Roman relationship between nature and the built environment, mediated by architecture and infrastructure. Even after antiquity, this relationship sustained uniquely Roman identities with particular forms of monumental construction and interventions on the landscape.² Water was an especially crucial component in the constellation of behaviors and monuments enabled by empire: the striding arches of Roman aqueducts advertised the security and abundance of water inside the empire's cities, where travelers and citizens benefited from baths and fountains, all supplied by free,

updating or extension of passages between the earlier and later texts, rather than their rewriting: see remarks preliminary to the completion of Montinaro's dissertation in "Byzantium and the Slavs in the Reign of Justinian: Comparing the Two Recensions of Procopius's *Buildings*," in *The Pontic-Danubian Realm in the Period of the Great Migration*, ed. V. Ivanišević and M. Kazanski, Centre de recherche d'histoire et civilisation de Byzance, Monographies 36/Arkheolški institute, Posebna izdanja, Knjiga 51 (Paris/Belgrade 2011), 89–114. A collation and comparison of these manuscripts is forthcoming, based on Montinaro's "Études sur l'évergétisme impérial à Byzance" (PhD diss., École Pratique des Hautes Études-Sorbonne, Paris, 2013), with important summary remarks about the nature of Procopius's redrafting by addition that appear in idem, "Power, Taste and the Outsider: Procopius and the *Buildings* Revisited," in *Shifting Genres in Late Antiquity*, ed. G. Greatrex and H. Elton (Aldershot, 2015), 191–206.

2 For Roman attitudes to monumental architecture, see fundamentally J. Delaine, "The Temple of Hadrian at Cyzicus and Roman Attitudes to Exceptional Construction," in *PBSR* 70 (2002): 205–30.

state-provided water.³ Aqueducts and baths were critical genres in the “toolkit” for Roman urbanism. Procopius drew from a rich reservoir of precedents that described these structures, amalgamating influences from diverse sources like imperial biographies,⁴ descriptions of cities that harked back to Homer and Plato⁵ but were updated by imperial antiquarians,⁶ geographers like Strabo⁷ and

Pausanias,⁸ rhetoricians like Menander,⁹ architectural ekphraseis,¹⁰ and technical and tactical manuals;¹¹ as well as epideictic speeches as crafted by Libanius¹² or

3 Aqueducts and baths were especially important to Gibbon’s recollection of the empire, insofar as they were “conducive to the health, the devotion, and the pleasures of the meanest citizen”; see his *Decline and Fall of the Roman Empire* (London, 1776), 1.2.2; see also M. Kaika on the cultural paradigm-shift enabled by the imperial Roman introduction of spring water into cities, with continuing ramifications for the habitus of modern cities, such as inspired Athens to attempt a (failed) reconstruction of Hadrian’s aqueduct between 1833 and 1889; *City of Flows: Modernity, Nature and the City* (New York, 2005), 100–105.

4 Augustus, *Res gestae divi Augusti* 20, trans. F. W. Shipley, Loeb 152 (Cambridge, MA, 1924), 377: “I restored the channels of the aqueducts which in several places were falling into disrepair through age, and doubled the capacity of the aqueduct called the Marcia by turning a new spring into its channel”; Suetonius, *Divus Claudius* 20.1, trans. J. C. Rolfe, Loeb 38 (Cambridge, MA, 1914), 39: “He brought to the city on stone arches the cool and abundant founts of the Claudian aqueduct, one of which is called Caeruleus and the other Curtius and Albulignus, and at the same time the spring of the new Anio, distributing them into many beautifully ornamented pools.” Also in the *Scriptores Historiae Augustae*, *Hadrian* 20.5–6, trans. D. Magie, Loeb 139 (Cambridge, MA, 1921), 63: “[Hadrian] gave his name to aqueducts without number.” Water infrastructure of any kind is notably absent in the *Vita Constantini*, though it appears in panegyric and imperial biography for the later emperors, discussed below.

5 On Homer (*Odyssey* 6.262–68 for the harbor in the city of the Phaeacians) and Plato (*Critias*, 110–12 on the advantages of the Acropolis, including its spring) see M. Whitby, “Procopius’ *Buildings*, Book I: A Panegyric Perspective,” in *De aedificiis: Le texte de Procope et les réalités*, ed. C. Roueché, J.-M. Carrié, and N. Duval, *Antiquité Tardive*, n.s. 8 (Turnhout, 2000), 50.

6 Dionysius of Halicarnassus, *Roman Antiquities* 3.67.5, trans. E. Cary, Loeb 347 (Cambridge, MA, 1939), 241: “Indeed, in my opinion the three most magnificent works of Rome, in which the greatness of her empire is best seen, are the aqueducts, the paved roads and the construction of the sewers.” Note also Pliny’s declaration, following an account of the early emperor’s involvement with aqueduct construction, that “if we take into careful consideration the abundant supplies of water in public buildings, baths, pools, open channels, private houses, gardens and country estates near the city; if we consider the distances traversed by the water before it arrives, the raising of arches, the tunneling of mountains, the building of level routes across deep valleys, we shall readily admit that there has never been anything more remarkable in the whole world” (*Natural History* 36.121–23, trans. D. E. Eichholz, Loeb 419 [Cambridge, MA, 1962], 96–99).

7 Strabo, *Geography* 5.3.5, trans. H. L. Jones, Loeb 50 (Cambridge, MA, 1923), 405: “So much then for the blessing with which nature

supplies the city; but the Romans have added still others which are the result of their foresight. . . . Water is brought into the city through the aqueducts in such quantities that veritable rivers flow through the city and the sewers. . . .”

8 D. Birge, “Trees in Pausanias’ Landscape,” in *Placing the Gods: Sanctuaries and Sacred Space in Ancient Greece*, ed. S. E. Alcock and R. Osborne (Oxford, 1994), 231–46 at 240 notes more than eighty shrines or temples identified by Pausanias in association with springs, fountains, or other water sources nearby. Elsner locates the model for Procopius’s brand of periegesis in Pausanias, which “unites sights . . . with narratives about them.” See J. Elsner, “The Rhetoric of Buildings in the *De Aedificiis* of Procopius,” in *Art and Text in Byzantine Culture*, ed. L. James (Cambridge, 2007), 33–57, here at 42.

9 Menander Rhetor, *Treatise II* 386.22–30, ed. and trans. D. A. Russell and N. G. Wilson (Oxford, 1981), 107, in which Menander recommends in a speech of epibaterion, or arrival, that “you must describe the actual form of the city, and talk of its colonnades, temples, harbours, prosperity, wealth, imports by sea, race-courses (if any), festivals, luxurious baths [λουτρῶν ἀπολαύσεις], aqueducts [ὕδατων ἐπιρροάς], groves in the city itself, the surroundings. . . .”

10 See the study of Hippias’s ekphrasis on a bath by F. Yegül, “The Small City Bath in Classical Antiquity and a Reconstruction Study of Lucian’s ‘Baths of Hippias,’” *ArchCl* 31 (1979): 108–31. The description of problems arising in the course of construction was a commonplace in such architectural ekphraseis, picked up by Procopius; see the note by M. Whitby, “Pride and Prejudice in the Imperial Images of the *Buildings*,” in Roueché, Carrié, and Duval, *De aedificiis*, 60.

11 See the discussion of the rhetoric of technicality in Procopius by E. Turquois, “Technical Writing, Genre and Aesthetic in Procopius,” in *Shifting Genres in Late Antiquity*, ed. G. Greatrex and H. Elton (Aldershot, 2015), 219–31. Turquois begins her article with a very apropos citation of M. Mullett, who described Procopius’s sixth century as a “time of great flux and mixing of genres, not in the sense of modulation or of inclusion but of sheer mixing,” in “The Madness of Genre” *DOP* 46 (1992): 237. Forthcoming publication of Turquois’s dissertation also promises a pertinent discussion of these matters: “Envisioning Byzantium: Materiality and Visuality in Procopius of Caesarea” (PhD diss., Oxford University, 2013). Generally on military and tactical treatises in late antiquity see M. Lenoir, “La littérature *De re militari*,” in *Les littératures techniques dans l’antiquité romaine: Statut, public et destination, tradition*, ed. C. Nicolet, Fondation Hardt, Entretiens sur l’antiquité classique 42 (Vandoeuvres, 1996), 77–108.

12 Libanius, *Antiochikos*, Oration 11.245, trans. G. Downey, “Libanius’ Oration in Praise of Antioch (Oration XI),” *PAPS* 103, no. 5 (1959): 678: “We surpass the beautiful waters of other cities by the abundance of ours. . . . Each of the public baths pours forth a stream as large as a river.”

Himerius.¹³ Yet by the time of Procopius's writing in the sixth century, the traditional relationship between empire and water was deeply in flux. Close reading of the *Buildings* in its sociohistorical and literary contexts reveals it to be a significantly evolved specimen of attitudes, practices, and ideologies concerning water across the early Byzantine world, when compared with earlier Roman precedents—whether or not we might judge these changes to have been deemed salutary by their conservative author, Procopius.

The outline of the *Buildings* is clear, with book 1 focused on Justinian's building initiatives in Constantinople, and books 2–6 giving at least the illusion of a complete, site-by-site survey of projects in the provinces (book 2 for Syria and Palestine, book 3 for Armenia and the Euxine coasts, book 4 for the Balkans, book 5 for Asia Minor, and book 6 for North Africa), but the organizational and compositional principles guiding Procopius's choice of sites and subjects are less obvious. The influence of classical and Roman rhetorical models on the composition and structure of the *Buildings* has become plain in studies from the last decade, but the special importance of the representation of water in the *Buildings*—as a platform or vehicle from which to observe broader changes in late antique culture and cities (in a subtle but marked break from classical or imperial Roman precedents), and as a structuring element for the text as a whole—remains understudied.

Any discussion of water as a theme in the *Buildings* must necessarily be situated between or at least alongside the diametrically opposed polemics of Anthony Kaldellis and Averil Cameron, both of whom are concerned with divining Procopius's intentions in writing about the reign of Justinian, and thereby the character of the work as a whole.¹⁴ Cameron argued, in her book *Procopius and the Sixth Century* (1985) and in several articles since then, that Procopius's *Buildings* should

be read as a Christian's work of panegyric, despite acknowledged "distortion[s]" of fact and important differences with the plainly dissident *Secret History*, which Cameron identified as a "critique of means and of personalities coexisting with an acceptance of the basic assumptions of the Justinianic regime."¹⁵ Anthony Kaldellis, on the other hand, whose book *Procopius of Caesarea: Tyranny, History, and Philosophy at the End of Antiquity* (2004) is the most recent commentary on Procopius's literary production, wrote with Cameron squarely in his sights. Kaldellis concluded—following on Rousseau's earlier argument¹⁶ and in juxtaposition to Cameron—that the *Buildings* was "an insincere and possibly coerced work of flattery, full of subversive allusions and grievous factual distortions."¹⁷ For Kaldellis, Procopius was a pagan author who was deeply critical of Justinian's imperial project and who produced in the *Buildings* an insurrectionary crypto-text for erudite readers that became recognizable only through its classical allusions and interplays, obscured beneath a seemingly positive and traditional panegyric.¹⁸

Despite deep differences in their approaches and conclusions, Cameron and Kaldellis are alike in their omission of water as a topic for serious inquiry in the *Buildings*. Kaldellis mentions water not at all; so focused is he on the deconstruction of Procopius's crypto-text that he passes over an opportunity to compare the revealing incongruities of classical allusions and topoi with their late antique contexts or corresponding *realia*, for instance regarding changing attitudes and practices related to the built or natural world and its resources, like water. Cameron, on the other hand, identifies water as one of three themes in the *Buildings* ("church building . . . , fortification and the water supply"), though she concludes that in general "it is less clear whether Procopius had made a conscious decision to concentrate on these topics, or how

13 Himerius, *Oration* 41.5–6, trans. and ann. R. Penella, *Man and the Word: The Orations of Himerius* (Berkeley and Los Angeles, 2007), 61: "Who could find great or beautiful enough words with which to hymn your great size or beauty? This city [Constantinople] begins to be bathed by the waters that are almost halfway across the straits. . . . Its senate house shines forth, its baths are enchanting, its theaters also win people's favor."

14 See for instance C. Becker's review of A. Kaldellis, *Procopius of Caesarea: Tyranny, History, and Philosophy at the End of Antiquity* (Philadelphia, 2004), in *Classical World* 100 (2007): 177–78.

15 A. Cameron, *Procopius and the Sixth Century* (Berkeley and Los Angeles, 1985), 84 and 11. See more recently eadem, "Conclusion," Roueché, Carrié, and Duval, *De aedificiis*, 177–80.

16 P. Rousseau, "Procopius's *Buildings* and Justinian's Pride," *Byzantion* 68 (1998): 121–30.

17 Kaldellis, *Procopius of Caesarea*, 55.

18 Montinaro's observation that many of the passages and allusions identified by Kaldellis as subversive were conscientiously added to the second draft, the "long recension," arguably adds credence to Kaldellis's conclusions. See Montinaro, "Power, Taste and the Outsider," 204.

in practice he meant to arrange his material . . . but the material [in the *Buildings*] often seems to be strung together in an arbitrary kind of way.”¹⁹ This synthesis argues, on the other hand, that the gulf separating Cameron’s and Kaldellis’s approaches might be bridged by water, not as an arbitrary theme but as a carefully deliberated device, a consistently appearing literary element and sociocultural background that structures and undergirds the *Buildings*, and which throws a revisionist light on the techniques and intentions of Procopius’s literary oeuvre as well as material and ideological developments in Justinian’s sixth century.

Cameron and Kaldellis agree on the overall fragility of factual accuracy in the *Buildings* as a whole, though focused considerations of its contents by others are more mixed. Articles throughout the 2000 issue of *Antiquité Tardive*, dedicated to the *Buildings*, assessed water infrastructure in truth-tests for particular regions or sites, comparing Procopius’s text with the archaeological and epigraphic evidence, book-by-book, in order to prove or disprove the veracity of his account.²⁰ Klaus Belke, in an analysis of book 5 concerning Asia Minor, wrote that “much of Procopius’s information is verifiable from other literary sources and/or archaeological investigations,” before concluding that “even where there is no independent confirmation . . . Justinian is very likely to have been responsible.”²¹ Denis Feissel demonstrated that Procopius finds wide if occasionally spotty agreement with epigraphic sources, but also that inscriptions for a number of buildings known to have profited from Justinian’s patronage are absent in the *Buildings*.²² Elsewhere, “assess[ing] Procopius’ reliability,” Florin Curta wrote of the *Buildings*’ treatment of the Balkans that “Procopius’ description may thus be viewed, in its essence, as sound. The archaeological evidence substantiates this conclusion.”²³ Archaeological discoveries in the region also match up quite well with Procopius.²⁴ The fortifications at the Hexamilion on

the Corinthian Isthmus were proven by Gregory’s excavations to be Justinianic in date,²⁵ whereas excavations at Caričin Grad have revealed that Justinian monumentalized the city of his birth in a fashion befitting its status, even if it was occupied thereafter for only a short period of time, and was perhaps never finished.²⁶

More negative assessments of the *Buildings*’ reliability predominate. A quick walk through Viranşehir in Cappadocia, identified by Berger as Mokisos, can inspire a fundamental mistrust of the *Buildings*.²⁷ Procopius tells us, after describing the city’s fortifications, that “there too [Justinian] built many churches and hospices and public baths and all the other structures that are the mark of a prosperous city. Consequently it rose even to the rank of a metropolis, for thus the Romans call the leading city of a province” (5.4.15–18). Excepting a few scattered churches, however, the settlement at Viranşehir could forgivably be mistaken as Bronze Age. No hint of baths or an aqueduct, or even city walls apart from a small fortified enclosure, can be recognized at the site in the form suggested by Procopius. There are certainly none of the institutions or “marks of a prosperous city” in the classical Roman conception, which would necessarily include aqueducts and baths.

Elsewhere, Croke and Crow found “selective omission and misrepresentation . . . throughout Book 2,” and warned that the *Buildings* should “only . . . be used with the utmost caution as a potential repository of factual information.”²⁸ Cameron, too, acknowledged serious problems in the *Buildings*, citing Crow and Croke’s study of Dara to show that Procopius “reveal[ed his] deficiencies as a reporter even for places he knew well through his own experience.”²⁹ And throughout the

19 Cameron, *Procopius and the Sixth Century*, 86.

20 Roueché, Carrié, and Duval, *De aedificiis*.

21 See K. Belke, “Buch V, zu Kleinasien,” *ibid.*, 115–25; both quotes here in the abstract, at 115.

22 D. Feissel, “Les édifices de Justinien au témoignage de Procope et de l’épigraphie,” *ibid.*, 81–104.

23 F. Curta, *The Making of the Slavs: History and Archaeology of the Lower Danube Region, c. 500–700* (Cambridge, 2007), 155.

24 *Ibid.*, 151–52.

25 T. Gregory, *The Hexamilion and the Fortress*, Isthmia 5 (Princeton, 1993).

26 B. Bavant, “Caričin Grad and the Changes in the Nature of Urbanism in the Central Balkans in the Sixth Century,” in *The Transition to Late Antiquity on the Danube and Beyond*, ed. A. G. Poulter, Proceedings of the British Academy n.s. 141 (Chippenhams, 2007), 337–74.

27 A. Berger, “Viranşehir (Mokisos), eine byzantinische Stadt in Kappadokien,” *IstMitt* 48 (1998): 349–429.

28 See B. Croke and J. Crow, “Procopius and Dara,” *JRS* 73 (1983): 143–59, here at 144 and 159.

29 Cameron, *Procopius and the Sixth Century*, 86.

Buildings, Roques noted “déséquilibres, bizarreries ou oubli . . . [et] absences.”³⁰

While comparisons with archaeological and epigraphic evidence leave mixed impressions of Procopius’s reliability, literary analyses have drawn attention to the fundamental integrity of the *Buildings* as a unique document of sixth-century rhetorical sensibilities. Mary Whitby’s contribution to the 2000 *Antiquité Tardive* volume convincingly demonstrates how Procopius skillfully updated Roman topoi or rhetorical formulae for architecture in *Buildings* book 1, the better to express the tranquility and security of Christian Constantinople. Imperial power embraced the capital and, secure in the emperor’s piety and closeness to God, defied nature with architecture that changed earth into water and water into earth, and even brought the heavens under a dome at Hagia Sophia.³¹ Similarly, Jás Elsner draws attention to the way in which Procopius deftly interwove numerous genres throughout the *Buildings*—drawing local histories into imperial geography, or extending the generic appearance of buildings in imperial biography or Menander’s praise of cities into disarmingly elaborate ekphraseis—to “create a brilliant new kind of panegyric,” a “bravado text that transpose[d] real monuments into textual discourse.”³² As a whole, Elsner argued that this discourse served to articulate a “three-pronged imperial ideology: the maintenance of defenses, the upholding of an ancient civic and civilized way of life founded upon cities . . . ; and the cultivation of the Christian god.”³³

The problem of water can add several more pieces to this puzzle: closer inspection of water’s representation in the *Buildings* reveals that Procopius was as much an innovator as his imperial subject, an author who combined literary topoi and tropes in a creative fashion to express—as best he could within the limits of his genre and his classical education—how the hydraulic worlds he knew had subtly but markedly diverged from their imperial Roman predecessors.

My aim here is to treat the text as an artifact, deliberately shaped by its author, where water appears

in a starring but strikingly incongruous role. Truth-test comparisons of the text with the archaeological or epigraphic evidence are a first rather than a last step. Nor must we prioritize judgements of potential subversion in the *Buildings*, either vis-à-vis its discrepancies with the *Secret History* and *Wars* or its deployment of classical allusions.³⁴ Leaving aside the un/reliability of individual sections, or the in/sincerity of the *Buildings* as a whole, Procopius’s text may be illuminated as a witness and reflection of late antique urban change, which included in a very fundamental way shifting Roman perceptions of proper state-level investments in water infrastructure.

What can explain the ubiquity of water in the *Buildings*? James Howard-Johnston goes so far as to speculate that Procopius himself was a hydraulic engineer by training, “very much . . . concerned with structural stability and with the protection of all manner of man-made structures against damage by water.”³⁵ But the wide range of water infrastructure’s representation in the *Buildings* arguably has less to do with Procopius’s professional training, or even the mimicry of rhetorical precedents from classical and Roman antiquity, and rather more to do with the state of the Roman world and the infrastructure challenges it faced during the sixth century, at the time of Procopius’s composition.

Procopius alludes to these challenges with innovations alongside otherwise conservative images for Roman cities, derived from the traditional architectural “toolkit” for Roman urbanism. This toolkit included walls and fortifications, temples or churches, aqueducts, baths, and fountains; but never cisterns or reservoirs, which appear as the objects of an emperor’s peacetime patronage for the first time in Procopius. Procopius communicates unusual details about baths and

30 See D. Roques, “Les constructions de Justinien de Procope de Césarée: Document ou monument?” *CRAI* 142, no. 4 (1998): 995.

31 This modified chiasmus is lifted from Delaine, “Temple of Hadrian,” 211 (n. 2 above).

32 Elsner, “Rhetoric of Buildings,” 50 (n. 8 above).

33 Ibid., 46.

34 Cameron asserted that Procopius “accepted the basic premise that Christian emperors ruled by the grace of God,” but Kaldellis reads the *Buildings* as wholly subversive, arguing that “Procopius understood the ideological dimension of Justinian’s tyranny [but he did not accept it].” See Kaldellis, *Procopius of Caesarea*, 51 (n. 17 above). For Kaldellis, flattering elements and classical allusions in the *Buildings* (like comparisons of the emperor Justinian to the tyrants Cyrus or Themistocles) “reflect Procopius’s hostility to the regime”; see *ibid.*, 53. Rousseau similarly explored the possibility that “the *Buildings* can be read as a judgment on Justinian almost as scathing in its implications as [the *Secret History*];” see “Procopius’s *Buildings* and Justinian’s Pride,” 121 (n. 16 above).

35 J. Howard-Johnston, “The Education and Expertise of Procopius,” in Roueché, Carrié, and Duval, *De aedificiis*, 29.

aqueducts—which were represented so generically in earlier Roman literature—and this should give us pause. When compared with Roman literary precedents, the wide-ranging episodes related to water management in the *Buildings* paint a surprisingly variegated picture of both conservative and innovative approaches to late antique water management, which extends throughout the whole of Procopius's *Buildings*. The problems or benefits of water shortage and surplus in the *Buildings* provide structure and create contrasts or amplification within and between the city set pieces of Procopius's periegesis (see table 1). From this perspective, omissions, distortions, and fabrications stand out—especially when we think Procopius might have known better—because they represent very deliberate interventions of the author upon the text and his subject.

Cameron wrote that “the cities themselves were already changing from the classical to the medieval form . . . [but] of this complex and subtle development there is little sign in the *Buildings*, with its bland assumption of Late Roman continuity.”³⁶ Quite to the contrary, Procopius does not just mimic inherited literary topoi that praise a city for its water resources, aqueducts, fountains, and baths. Rather, Procopius emerges as an innovator who mixes genre characteristics and expectations, who manages to describe changing ideologies and practices of water management with conservative language and concepts and to expand the range of water management projects with which emperors were traditionally associated. The *Buildings* positively creaks with Procopius's effort.³⁷

The strain becomes immediately apparent if we compare section 26 of the *Secret History*, concerned with the disrepair of Constantinople's aqueducts, against the general tenor of the *Buildings*, including the lengthy description of the capital in book 1. In the *Secret History*, Procopius reports that

One of the municipal aqueducts, which furnished not a small share of the city water, collapsed; but the rulers [Justinian and Theodora]

disregarded the matter and refused to repair it, though the constant crowds who had to use the wells were fairly stifling, and all the baths were shut down. On the other hand, he threw away great sums of money senselessly on buildings by the seashore and elsewhere, in all the suburbs, as if the palaces in which all the former emperors had been content to dwell were not enough for this pair. So it was not to save money, but to destroy his subjects, that he refused to rebuild the aqueduct; for no one in all history had ever been born among men more eager than Justinian to get hold of money, and then to throw it immediately away again. Through the two things left to them to drink and eat, water and bread, this Emperor injured those who were in the last extremes of poverty; making the one hard to procure at all, and the other too expensive to buy.³⁸

Justinian's mismanagement of water at Constantinople in the *Secret History* contrasts sharply with the ruler's qualities in the *Buildings*, where Justinian is a fast responder, judicious, inspired, and more clever than his engineers; an economizer of water resources with indiscriminate taste for water from wells or cisterns. In the *Secret History*, on the other hand, the emperor is said to have misused state funds to build lavish seaside mansions for himself while a collapsed aqueduct was left unrepaired, leaving thirsty citizens to crowd around wells.³⁹ Crow has argued that the aqueduct in question was the long-distance Thracian line, damaged by earthquake; the Hadrianic channel that supplied the Great Palace was apparently unaffected and continued to function.⁴⁰ That the city was so affected by the dysfunction of the Thracian aqueduct in Justinian's

38 *Secret History*, 26.

39 The account of the panegyricist is at odds with local sources: the Longinus inscription records repair and construction along the Thracian aqueduct line during the reign of Justinian, possibly at Nikol Dere near Belgrat; see the discussion by J. Crow and R. Bayliss, “Water for the Queen of Cities: A Review of Recent Research in the Byzantine and Early Ottoman Water Supply of Constantinople,” *Basilissa* 1 (2004): 28–49.

40 On this passage and its relevance for the history of Constantinople's water system during the sixth century see J. Crow, J. Bardill, and R. Bayliss, *The Water Supply of Byzantine Constantinople*, JRS Monograph no. 11 (London, 2008), 17–19.

36 Cameron, *Procopius and the Sixth Century*, 111; for an overview of urban change in the sixth century as it relates to aqueducts and baths see also H. G. Saradi, *The Byzantine City in the Sixth Century: Literary Images and Historical Reality* (Athens, 2006), 325–52.

37 Procopius confronts his inadequacy when he famously claims to have only “a lisping and thin-voiced tongue” that is incapable of doing justice to his topic, in his first *proemium*; see *Buildings* 1.1.3.

Table 1. Discussions in the *Buildings* of hydraulics in relation to the narrative structure.

Reference	Location	Problem	Comments
I	Constantinople		
2.1.1–3	<i>Proemium</i>		
2.1.4–2.3.26	Dara	F + Inf + Sh + Su	Dam, aqueduct, streets and drainage, river management
2.3.27–28	Amida/Edessa	F	
2.4.1–13	Rhabdios	Sh	Cistern at <i>refugium</i> /fortifications surrounded by agricultural land, with channels for rainwater collection
2.4.14–21	Agricultural villages on river valley	F	<i>Refugia</i>
2.4.22–24	Baras	Sh	Well construction
2.5.1–8	Theodosiopolis and Constantina	F	Circuit walls
2.5.9–11	Constantina	F + Sh	Aqueduct and fountains
2.6.1–11	Circesium, Osrhoene	F + Su	River management, at the confluence of the Khabur River with the Euphrates
2.6.12–16	Various locations	F	
2.7.1–14	Edessa	F + Su	Flood management and river diversion
2.7.15–19	Edessa and Carrhae, Callinicum	F	Circuit wall restoration
2.8.1–7	Persian/Roman border	B	
2.8.8–15	Zenobia	F	Restoration
2.8.16–25	Zenobia	Su	River management and bath construction
2.9.1–2	Fort Sura	F	Circuit construction
2.9.3–9	Resafa	F + Sh	Circuit fortification and reservoir construction
2.9.10–11	Hemerium	F + Sh	Cistern construction in fortifications
2.9.12–17	Hierapolis	Pollution	Unregulated garbage and washing in clean lake source
2.9.18–20	Various locations	F	
2.10.1–5	Antioch	F	
2.10.6–8	Antioch	Su	River diversion and bridge construction
2.10.9–12	Antioch	F	
2.10.13–14	Antioch	Sh	Baths and cisterns built on leveled hills inside circuit
2.10.15–18	Antioch	Su	Arch dam construction with sluice gates
2.10.19–25	Antioch	Ch + Sh	Construction of streets and ramified urban supply/drainage systems and church construction
2.11.1	Chalcis	F	
2.11.2–7	Cyrrhus	Sh	Hidden aqueduct construction
2.11.8–9	Chalcis	F	
2.11.10–12	Palmyra	F + Sh	“... provided it with abundant water”
3.1–6	Armenia	F + Su + ST	Generally concerned with fortifications, but note new “abundant water supplies” for fortified place with garrison at Citharizôn [3.3.7–8]; and see settlement transfer from Bizana to Tzumina [3.5.13–5]

Table 1. (*continued*)

Reference	Location	Problem	Comments
3.7.1–4	Trabzon	Sh	St. Eugenius aqueduct construction
3.7.18–25	Anchialus		Elevation and fortification of thermal-spring town
4.1.1–16	Europe		Geographical description
4.1.17–27	Iustiniana Prima	Sh + Ch	Construction of aqueduct + bath + fountains + streets and stoa. Elevation to Archbishopric of Illyricum.
4.1.28–36	Ulpiana/Iustiniana Secunda and elsewhere	F	
4.1.37–42	Phoinike/Photike	F + Su + ST	<i>Phrouria</i> built close to two towns with irresolvable drainage problems
4.2.1–8	Thermopylae	F + Sh	Cistern construction
4.2.9–15	Greece	F + Sh	Reservoir and granary construction
4.2.16–22	Heraclea	F + Su	Torrent in deep pass between two forts blocked with cross-wall, for defense and to form retaining wall for pond forming behind
4.2.23–26	Athens and towns of Boeotia	F	Restoration after earthquakes
4.2.27–28	Isthmus	F	Isthmus walls
4.3.1–5	Diocletianopolis	F + ST	City moved to nearby island
4.3.6–15	Thessaly	F	Plentiful water is meaningless if citizens are endangered
4.3.16–26	Euboea	F	
4.3.27–30	Rhechius River (mod. Vardar?) near Thessalonike	F	Plentiful water is meaningless if citizens are endangered
4.4	Europe	F	
4.5	River Ister (mod. Danube)	F	History of river as border
4.6.1–18	River Ister	F	Ruins of Trajan's bridge impede boat traffic
4.6.19–37	River Ister	F	
4.7	Mysia	F	
4.8.2–9	Rhegium, Thrace	Su	Drainage on roads improved
4.8.10–17	Rhegium, Thrace	Su	Bridge construction
4.8.18	Athyra, Thrace	F + Sh	Reservoir construction
4.8.19–25	Episcopia	F	
4.9.1–13	Thrace	F	
4.9.14–16	Heraclea (mod. Silivri)	Sh	Aqueduct construction
4.9.17–21	Rhaedestus	F	
4.10.1–23	Chersonese, Gallipoli	F + I	Bath and guest house construction
4.10.24–28	Sestus, Hellespont	F	
4.11	Thrace	F	
4.11.13	Anastasiupolis, Thrace	A	“he raised the aqueduct to an imposing height all the way from the mountains which rise here as far as the city”
5.1.1–3	<i>Proemium</i>		“Repairing all the parts of cities which had become defective . . .”

Reference	Location	Problem	Comments
5.1.4–6	Ephesos	Ch	St. John at Aya Soluk
5.1.7–16	Tenedos	I	Granary construction
5.2.1–5	Helenopolis, Bithynia	Sh	Aqueduct construction + bath construction and restoration
5.2.6–13	Helenopolis, river Dracon, Bithynia	Su	River Dracon management + bridge construction + forest clearance
5.3.1–3	Nicaea, <i>intra muros</i>	Sh	Aqueduct restoration + bath restoration + churches and palace
5.3.4–6	Nicaea, <i>extra muros</i>	Su	Bridge construction
5.3.7	Nicomedia	I	Bath restoration
5.3.8–11	Nicomedia	Su	Bridge construction on Sangarius river
5.3.12–15	Bithynia-Phrygia border	Su	Road drainage improvement
5.3.16–20	Pythia	Sh	Aqueduct + bath construction, with church and hospital
5.4.1–4	Galatia, River Siberis/Hierus in Galatia	Su	River Siberis management + dam + bridge construction, with church
5.4.5–6	Iuliopolis, Bithynia	Su	Circuit walls of city weakened by torrent; drainage correction
5.4.7–14	Caesarea, Cappadocia	F	
5.4.15–18	Mokissos, Cappadocia	Sh	Aqueduct + bath construction, with hospices and churches
5.5.1–3	Platanôn, Cilicia	Su	Road drainage correction
5.5.4–7	Mopsuestia, Cilicia on Pyramus River	Su	Bridge restoration
5.5.8–13	Adana, Cilicia	Su	Bridge restoration
5.5.14–20	Tarsus, Cydnus River, Cilicia	Su	Flood management: diversion of river Cydnus followed by bridge restorations
5.6.1–26	Jerusalem	Ch	Construction of the Nea church
5.7.1–17	Neapolis/Garizim	Ch	
5.8.1–10	Palaestina Tertia	Ch + B	
5.9.14	Palestine Lists	Sh	Wells and cistern construction in monastic contexts
5.9.34	Curicum, Mesopotamia	I	Bath + poorhouse restoration
5.9.36	Cyprus	Sh	Aqueduct of St. Conon restoration
6.1.12–13	Taphosiris, near Alexandria, Egypt	I + F	Bath and magistrate residences, with city wall
6.2.3–6	Bernice, Libya (Benghazi)	I	Public bath construction
6.2.9–11	Ptolemais/Tolometa, Cyrenaica	Sh	Aqueduct restoration
6.4.11	Leptis Magna	I	Bath construction + church, conversion of Gadabitani
6.5.8–10	Carthage	I	Bath construction + streets, stoas, churches, circuit wall
6.6.8–12	Byzacena and Caput Vada	Sh	Spring discovered during fortification

B border
 Ch churches
 F fortifications
 Sh shortage
 Su superabundance
 I infrastructure
 ST settlement transfer

reign suggests an overreliance on aqueduct supplies, and an insufficient number of backup sources even after two centuries of reservoir and cistern construction, which—in the event of siege or system failure—could in fact become a danger to the capital's security. Procopius's inclusion of the episode ascribes to the emperor a lack of care (σπουδῇ) and foresight (ἐπιμελίᾳ), both qualities important throughout the *Buildings* and in inscriptions from Justinian's reign.⁴¹

Here, the *Secret History* also betrays Procopius's classical predilection for an urban water supply preferentially focused on aqueduct-carried spring water. Throughout Roman literature, reports of reluctant or forced consumption from wells and cisterns were an important motivating factor that led to the imperial decisions to build aqueducts.⁴² As recently as the reign of Justinian's near-predecessor Anastasius (r. 491–518), the emperor had reportedly been so pained to hear of his citizens' drinking well and cistern water at

Hierapolis that he was persuaded to undertake construction of an aqueduct there.⁴³

Book 1: Water for the Queen of Cities: Hydraulic Infrastructure in Constantinople

Water is almost absent in the first book of the *Buildings*, which is focused on Constantinople and overwhelmingly concerned with Justinian's patronage of church construction. Five incongruous points, however, deserve brief and especial notice:

- (1) Constantinople's aqueducts are not the object of Procopius's praise, though these were standard elements in the praise of cities.⁴⁴ Rather, the city's aqueducts are mentioned only insofar as their output (derived from springs in a variable-karst zone) was susceptible to seasonal droughts that created frequent water shortage challenges (1.11.10–11). Nevertheless, Procopius describes the city as surrounded by water (1.5.2).
- (2) Baths, another standard element in the praise of cities, garner little attention in Procopius's account of the capital. The Zeuxippus baths and colonnades are mentioned only briefly, in the context of their restoration after the Nika revolt of 532 (1.10.3). More important are the Arcadianae baths at the Propontis harbor, which Justinian embellished with a columnar monument surmounted by a statue of Theodora, in the baths' forecourt (1.11.1–9).
- (3) Justinian offered his patronage to two major church shrines at springs around the city, at Blachernae and Zoodochos Pege (1.3.1–10). Justinian's restoration or elaboration of the Zoodochos Pege church—originally founded by Leo I, but before he became emperor—was also described in the tenth-century *Anonymous*

41 Compare for instance Procopius's account indicating construction of an aqueduct by Justinian at Trabzon/Trapezous with an inscription claiming construction of the aqueduct σπουδῇ καὶ ἐπιμελίᾳ of a bishop with funding from Justinian, nn. 73 and 86 below.

42 Compare the report of Philostratus that Herodes Atticus successfully intervened with the emperor Hadrian for funds to underwrite the aqueduct at Troy, after observing that it was "ill-supplied with baths, and that the inhabitants drew muddy water from their wells, and had to dig cisterns to catch rain water." See Philostratus, *Lives of the Philosophers and Sophists: Herodes Atticus* 548, trans. W. C. Wright, Loeb 134 (London, 1921), 142–43. Such clear preferences for spring water are also noted by Pausanias, when that author describes how the inhabitants of rocky Phocaeon Stiris descended four stades to a spring, though inside the city there was copious well water that was used only for animals and washing; see *Description of Greece* 10.36.9–10, trans. W. H. S. Jones, Loeb 297 (London, 1935), 584–85. Competition for the best-tasting spring water was elsewhere a common conceit in descriptions and praises of Roman cities: Pliny the Elder insists that it was the water of the Marcian spring, carried into Rome via aqueduct, that could lay claim to being "the most celebrated water throughout the whole world"; see *Natural History* 31.21–22, trans. W. H. S. Jones, Loeb 418 (London, 1963), 394–99. On the other hand, Plutarch wonders "why . . . water drawn from wells [is] less nutritious than that which flows from a spring or from the sky?" (see Plutarch, *Moralia* 11.33, trans. L. Pearson and F. H. Sandbach, Loeb 426 [Cambridge, MA, 1987], 217). Pliny (*HN* 31.21–2) acknowledges that though "it is a question debated by the physicians what kinds of water are most beneficial," he is "surprised that some physicians recommend highly water from cisterns" because "there is no kind of water [which] contains more slime or more numerous insects of a disgusting nature."

43 A. Chauvot, ed. and trans., *Procopius de Gaza, Priscien de Cesaree: Panegyriques de l'Empereur Anastase I^{er}: Textes traduits et commentés*, Antiquitas Reihe 1 (Bonn, 1986), 18–19 for the Greek and 43–44 for the French translation. Which Hierapolis—Cilician, Phrygian, or Palestinian—is unclear; see C. Jones, "Procopius of Gaza and the Water of the Holy City," *GRBS* 47 (2007): 455–67.

44 For the Roman literary models see nn. 4–13 above.

Miracles of the Pege.⁴⁵ Justinian's patronage of a church at a spring-site is, to my knowledge, without late Roman precedent.⁴⁶

- (4) The account of the Basilica Cistern's construction (1.11.12–15) is completely anomalous in the history of Roman praise for imperially sponsored architecture, for two reasons. First, and by simple virtue of its inclusion in book 1 of the *Buildings*, Procopius elevates cisterns and water storage to the level of churches and baths or fortifications, or other works traditionally befitting an emperor's patronage, that created the acknowledged image of an ideal Roman city. Water storage structures in the centuries preceding Justinian had previously been the reserve of elite and episcopal building activities.⁴⁷ Second, Procopius identifies economization, rather than abundance of supply, as the goal of a major imperial water infrastructure project. We discuss the importance of water conservation and the architectural genre of cisterns and reservoirs to the *Buildings* in fine detail below.

Through these hints, absences, and incongruities in book 1's representation of water at the capital in Constantinople, Procopius alludes to a changing or unexpected relationship between nature and imperium, water and empire, even if he cloaks novelty in conservative language and concepts. This pattern is fleshed out in the remainder of the *Buildings'* books 2–6, which introduce Justinian's building initiatives in the provinces: in these pages, water in fact becomes a significant structuring element within and between set pieces, creating amplification and contrast for episodes of water shortage and flood, rendered positively or negatively. That is, water shortage in drought causes serious social disorder, but when a besieging army unexpectedly finds itself without water outside the city walls, water scarcity can also be positive. Floods are a clear danger to the

health of the empire when they wipe out cities and kill Romans or their animals. But when carefully controlled for purposes like irrigation, or unleashed strategically, water superabundance or flood can also take on very positive connotations. Where previous Roman writers were satisfied to introduce tropes of water's abundance in Roman cities, without concern for variation in local conditions, Procopius is remarkable for presenting the particular effects of positive and negative shortage or abundance in highly nuanced and localized scenarios.⁴⁸ A thoroughgoing assessment of water in the *Buildings'* second-longest set piece, at Dara, will help explain these points before we consider how Procopius shaped and represented genres of water infrastructure throughout the *Buildings* as a whole.

Water in the *Buildings* at Dara

To understand how Procopius used water as a structuring element in the *Buildings*, let us begin with Dara. Dara is the longest set piece in the entire work after Constantinople; field studies here have a long scholarly history despite the lack of comprehensive surveys or excavations.⁴⁹ Procopius may have chosen Dara to introduce his survey of the provinces in books 2–6 because of his personal experience there as Belisarius's secretary during the Persian campaigns.⁵⁰ The range of distortions and inaccuracies may also suggest, however, that Procopius chose to begin with Dara because it allowed him to introduce and shape water, in breadth and depth, as a theme that would pervade the rest of his work. After dealing with fortifications, each story element describes some episode of water shortage or superabundance in positive or negative terms. The striking structure of Procopius's Dara set piece (2.1–3) is described in table 2.

48 Compare for instance the generalized account of water's abundance at Antioch by Libanius in the *Antiochikos* (see n. 12 above) with the highly detailed and localized account of Procopius in the *Buildings* 2.10; note also G. Downey, "Procopius on Antioch: A Study of Method in the *de Aedificiis*," *Byzantion* 14 (1939): 361–78.

49 Note the excellent photographs of Dara's landscapes and historical structures taken in the 1970s and 1980s by Jim Crow, Enrico Zanini, and Michael Whitby, accessible online by courtesy of the Dara Project at <https://www.flickr.com/photos/134601357@No6/> albums (accessed 9 March 2017).

50 For the author's biography, still fundamental is G. Rubin's account, "Prokopios von Kaisareia," *RE* 23:273–599.

45 *Anonymous Miracles of the Pege*, trans. A. M. Talbot, in *Miracle Tales from Byzantium*, Dumbarton Oaks Medieval Library no. 12 (Cambridge, MA, 2012); see esp. xiv–xviii and 210–13.

46 A groundwater comparison might be sought in Constantine's foundation of a church at the Holy Well of Mamre; see the *Life of Constantine*, trans. A. Cameron and S. Hall (Oxford, 1999), 301.

47 See the section dedicated to cisterns, below.

Table 2. Water challenges at Dara in the *Buildings*.

Reference	Challenge	Env. Impact	Comments
2.1.1–3			Proemium
2.1.4–27			Discussion of fortifications
2.2.1	Shortage	–	First mention in <i>Buildings</i> of church with cistern for urban water storage
2.2.2–9	Superabundance	±	Description of Cordes River management, sluice gates for river in N and S circuit walls; river water fills reservoirs and is conducted within city, but flow-through to plain makes for easy siege
2.2.10–12	Shortage	–	Beginning of tale resembling spring-discovery in monastic tales and e.g. <i>Vitae Sabae</i> , diverted to discovery of chasm
2.2.13–16	Superabundance	–	The flood at Dara “circulated through the marketplace and the streets and even through the houses”
2.2.17–18	Superabundance	+	River is controlled to flow through Dara, “fills reservoirs to overflowing then borne out of city by the exits”
2.2.19–21	Shortage	+	Strategic diversion of torrent into chasm, rather than out onto plain on other side of city, where thirsty besieging Persian armies can drink it
2.3.1–23	Superabundance	–	Chryses of Alexandria and Justinian both dream of plans for construction of arched dam and sluice gates to regulate water flow; commission sent out to Hagia Sophia’s engineers Isidore and Anthemius, moonlighting here as hydraulic specialists
2.3.24–25	Shortage	–	Problems with water quality or availability directly from river, widespread shortage leads to construction of “great conduit by which Justinian led water to every part of the city . . . and also constructed two shrines, Great Church and Church of Bartholomew”

+ potentially beneficial environmental challenge: for instance, a river that floods wipes out an enemy army or creates water for seasonal irrigation, which might inspire construction of a dam.

– potentially injurious environmental challenge: for instance, a river prone to flooding and destruction of the built environment, which might also inspire dam construction.

± potentially beneficial or injurious environmental challenge

True to his introduction’s stated intention to focus on Justinian’s fortifications,⁵¹ Procopius begins his account of Dara with a lengthy description of the city’s circuits (2.1.4–27). Procopius relates how Anastasius elevated a village named Dara to the status of a city, by reason of its strategic position on the Persian-Roman border. In anticipation of a siege, Anastasius “carried out the construction of the circuit-wall in great haste,

not having made it fit to withstand the enemy” by neglecting to raise it to full height with dressed and fitted stones, or even mortar, according to Procopius (2.1.8–9). Justinian’s upgrades to these circuits are therefore described as the more important construction activity in the site’s history. But Crow and Croke found no evidence for significant alterations or restorations in the circuits, and concluded that Procopius’s account here is “a calculated misrepresentation,” which uses the Battle of Dara in 530 as a pretense for Justinian to claim credit for the work of his predecessors.⁵² Procopius’s

51 For the fortifications at Dara see E. Zanini, “La cinta muraria di Dara: Materiali per un’analisi stratigrafica,” in *Milione: Costantinopoli e l’arte delle province orientali*, ed. F. de Maffei (Rome, 1990), 229–64 and F. de Maffei, “Le fortificazioni sul limes orientale ai tempi di Giustiniano,” *CorsiRav* 32 (1985): 109–48.

52 On this battle see most recently C. Lillington-Martin, “Procopius on the Struggle for Dara and Rome,” in *War and Warfare in*

account of this battle in his other work, the *Wars*, “has no hint of inadequacy of [pre-existing] fortifications.”⁵³ Justinian’s restorations of the fortifications at Dara—if any—were probably minor.⁵⁴

After discussing fortifications in the first section, the remainder of the long Dara set piece is devoted to water infrastructure, with a series of balanced anecdotes that concern the manipulation of water, and which portend both positive and negative effects linked to water management actions or inactions.

In the second episode (2.2.1) the author briefly addresses water shortage. Procopius describes the construction of water tanks or reservoirs (ὑδατος) within the city’s fortifications, and separately “close by the church which is dedicated to the Apostle Bartholomew.” Brands has argued that the Bartholomew church should be identified with the large, polygonal apsed cruciform cistern in the substructure of a church in the western part of the city.⁵⁵ This is the *Buildings*’ first acknowledgment of an important aspect of late antique urban change: the church’s growing role in urban water management and especially water storage, with large cisterns in church complexes that were commonly fed independently by rainwater, but could also be integrated into municipal aqueduct systems, as precisely described here. Theodore Lector identifies the church of St. Bartholomew as the work of Anastasius,⁵⁶ while

the long account of Zachariah of Mitylene⁵⁷ reports that the church and cistern were the work of the bishop and clergy of Amida.⁵⁸ Justinian’s role is, in any case, likely overstated.

Procopius initially explains that these cisterns in the fortifications near St. Bartholomew were fed by river water, but later contradicts himself. The reservoir in the fortifications was “between the circuit-wall and the outworks”; this strongly suggests a moat, but the parallelism ὑδατος . . . ἐργάσατο with the St. Bartholomew church-reservoir could indicate that both were intended or perceived as suitable sources for drinking water, the former for the reservoirs probably used by animals.⁵⁹ A few lines down, Procopius says that these reservoirs—in the fortifications and at St. Bartholomew’s—were filled by river water from the Cordes, directed into the city by a sluice gate (2.2.6), though he later contradicts himself again when explaining why Justinian needed to build an aqueduct for the city (2.3.23). While Croke and Crow argued that cisterns known at Dara are on high ground, and could not have been filled by river water without sophisticated water-raising devices, Brands suggested that “eine Ableitung von Wasser aus dem Fluss durchaus denkbar [ist],” and considered the possibilities of both rainwater and an aqueduct-fed supply, discussed below.⁶⁰

The third episode in the set piece (2.2.2–9) turns to the management of the Cordes (modern Amudah) River near Dara. The river was superabundant, with a negative result: it detracted from the strength of the city walls by making the city easy to besiege. After the Cordes flowed through the city, filling its reservoirs and “conducted wherever the inhabitants wish” (2.2.6), river water exited the city near the main south gate in the fortifications. “And winding about the plain nearby, it used to make the city easy to besiege; for it was not a difficult matter, thanks to the bountiful supply of water, for the enemy to encamp there.” These sluice gates,

Late Antiquity: Current Perspectives, ed. A. Sarantis and N. Christie, *Late Antique Archaeology* 8.1–2 (Leiden, 2013), 599–630, and C. Lillington-Martin, “Archaeological and Ancient Literary Evidence for a Battle near Dara Gap, Turkey, AD 530: Topography, Texts and Trenches,” in *The Late Roman Army in the Near East from Diocletian to the Arab Conquest: Proceedings of a Colloquium Held at Potenza, Acerenza and Matera, Italy (May, 2005)*, ed. A. Lewin and P. Pellegrini, BAR International Series S1717 (Oxford, 2007), 299–311.

53 Procopius, *Wars* 1.13.9–1.14.55; Croke and Crow, “Procopius and Dara,” 153 (n. 28 above) and M. Whitby, “Procopius’ Description of Dara (‘Buildings’ 2.1–3),” in *Defence of the Roman and Byzantine East: Proceedings of a Colloquium Held at the University of Sheffield in April 1986* (Oxford, 1986), 737–83.

54 Croke and Crow, “Procopius and Dara,” 159.

55 G. Brands, “Ein Baukomplex in Dara-Anastasiopolis,” in *JbAC* 47 (2004): 144–55, here at 153–54. Sinclair informs us that the church was reused in the Islamic period as the Great Mosque, and reports that “we know from a 10th century source that all channels in the city flowed into the cistern beneath the [mosque]”; see T. Sinclair, *Eastern Turkey: An Architectural and Archaeological Survey*, 4 vols. (London, 1989), 3.221.

56 Theodore Lector, *Historia Ecclesiastica* 2.57, ed. PG 86.1:211.

57 Zachariah of Mytilene, *Historia Ecclesiastica* 7.6, trans. G. Greatrex, *Chronicle of Pseudo-Zachariah Rhetor: Church and War in Late Antiquity*, Liverpool Translated Texts for Historians 55 (Liverpool, 2011), 247–51.

58 See Croke and Crow, “Procopius and Dara,” 152.

59 Ibid., 156, where the authors astutely point to the 540 siege of Beroea/Aleppo in the *Wars* 2.7.13, during which animals consumed all the water inside the besieged citadel, accelerating its surrender.

60 Ibid., 158 n. 81 and Brands, “Ein Baukomplex in Dara-Anastasiopolis,” 150.

in the city's north and south gates, were identified by Preusser before they were assessed by Croke and Crowe, and most recently by Garbrecht.⁶¹ Procopius then indicates that this matter was taken under careful consideration by the Emperor Justinian, who is rendered as divinely inspired master-builder and *mechanikos*: "God provided the solution for the impossible problem which confronted him, settling the matter out of hand and saving the city without the least delay" (2.2.9).

The fourth episode (2.2.10–12) is a pendant to the third, concerned ostensibly with water shortage. "In consequence of a dream or . . . of his own accord," a soldier organized labor to dig a trench within the circuits, "showing them a certain spot where he said that they would find sweet water welling up from the recesses of the earth" (2.2.10–11). Procopius thus introduces an exceedingly familiar trope of the miraculous discovery of springs, for instance by contemporary monk-saints like Sabas.⁶² But Procopius defies genre expectations. The workers discover not a spring but a large chasm, which "proved to be the salvation of the city, not indeed by any foresight of these workmen."⁶³ The chasm solved the problem of the river Cordes's dangerous abundance after it exited the city, where it was potentially at the disposal of besieging armies. Procopius elsewhere tells us simply that "a long time after the Emperor Anastasius built this city, nature unaided fashioned and placed [the chasm] there" (*Wars* 8.7.8–9), though in the present episode the Dara chasm appears more akin to the one which miraculously appeared to save the church of St. Michael the Archangel at Chonai.⁶⁴

61 Croke and Crowe, "Procopius and Dara," 153–54, plates xi and xii. See also C. Preusser, *Nordmesopotamische Baudenkmäler: Altchristlicher und islamischer Zeit*, Wissenschaftliche Veröffentlichungen der Deutschen Orientalischen Gesellschaft 17 (Berlin, 1911): 44–45, fig. 12, pl. 54–57 and G. Garbrecht, "Procopius und die Wasserbauten von Dara," in *Wasserbauten im Königreich Urartu und weitere Beiträge zur Hydrotechnik in der Antike*, ed. C. Ohlig, Schriften der Deutschen Wasserhistorischen Gesellschaft 5 (Siegburg, 2004), 105–32.

62 E.g., Cyril of Scythopolis, *Life of Sabas* 101.5–15, trans. R. M. Price, *Lives of the Monks of Palestine*, Cistercian Publications 114 (Kalamazoo, 1991), 110.

63 Procopius, *Buildings* 2.2.12.

64 See A. Cadwallader, "A Stratigraphy of an Ancient City through Its Key Story: The Archistrategos of Chonai" and idem, "The Story of the Archistrategos, St. Michael of Chonai," both in *Colossae in Space and Time: Linking to an Ancient City*, ed. A. Cadwallader and M. Trainor, *Novum Testamentum et Orbis Antiquus* 94 (Göttingen, 2011), 282–98 and 323–30, respectively.

The salvation enabled by the discovered chasm is clarified in the fifth episode (2.2.13–16), which again introduces but then consequently defies genre expectations. Procopius recounts the city's ill preparation for flood, and the failure of its defensive walls which acted as a bulwark against torrential river water. During a sudden flood, rushing water breached the outer defenses and heavily damaged the inner city. Surging waters disappeared into the chasm, reemerging with the town's furniture forty miles away. The description of buildings and houses with people washed away by rushing waters compares instantly with precedent stories of disastrous floods.⁶⁵

Without segue, Procopius incongruously turns a familiar story of disaster into the triumph of divinely inspired infrastructure over unruly water: "And since then, in times of peace and in prosperity, this river has flowed into the center of the city and filled the storage-reservoirs . . . and then has been borne out of the city by the exits made for this purpose, as I have just explained." Strangely enough, Procopius has in fact not just explained these exits: he has described the discovery of the miraculous chasm. Rather, the sluice gates are described immediately thereafter, by which means Procopius tells us that the chasm is brought into operation in times of trouble, so that the city can divert water into it, away from besieging armies (2.2.19–21).

After describing the discovery and unexpected river-diverting function of Dara's chasm, Procopius begins the sixth long section by once again contradicting himself. Water infrastructure at Dara—including reservoirs, sluice gates, and drainage and distribution elements—has heretofore been described as miraculous, efficacious, and complete, saving the city in times of siege and allowing it to prosper in peacetime. But here

65 Cf. Theophanes, *Chronographia*, AM 6017, trans. C. Mango and R. Scott (Oxford, 1997), 262 for a description of Edessa's river Skirtos in flood in 517; or Evagrius Scholasticus, *Ecclesiastical History* 4.8, trans. M. Whitby, *Translated Texts for Historians* 33 (Liverpool, 2000), 208. See also the account of floods at Edessa in pseudo-Dionysius, *Chronicle of Pseudo-Dionysius of Tel-Mahre* 45–46, trans. W. Witakowski, *Translated Texts for Historians* 22 (Liverpool, 1996): 42, for AD 524/25. Procopius uses similar language to describe disastrous flooding preceding architectural intervention elsewhere in the *Buildings*, e.g., at Tarsus 5.5.19. The ultimate origin of the "beneficent flood" that washes away civilization only to save it is of course Noah's flood of Genesis 6:9–9:17; typologically this can be compared with the "strategic flood" that saved the Israelites and destroyed the Egyptian armies of Pharaoh on the Red Sea, Exodus 15:1–10.

Procopius tells us that the city—after everything accomplished by Justinian previous to this moment—was still left open to damage by flood. These actions are introduced by Procopius, who tells us that “I shall now relate how [Justinian] brought it about that this city should never again suffer such damage from the river, a matter in which God manifestly assisted his effort” (2.3.1).

The subsequent lengthy section (2.3.2–23) relates the construction of the arch-gravity dam at Dara as a thoroughly top-down architectural solution to flood—in contrast with the accidental discovery of the chasm by soldiers digging for a well—designed and enacted from the highest levels of the Byzantine state.⁶⁶

After relating the unusual effort expended to control the river Cordes’s flow into Dara, and its benefits for the supply of drinking water, the focus on urban water shortage in the final short section (2.3.24–26) comes as something of a surprise. After all, the “river flowed into the center of the city and filled the storage-reservoirs with water to overflowing” (2.2.17). Water controlled by the dam was carefully released into a holding pool “forty feet between the dam and the outer fortifications . . . [and] goes in an orderly fashion into the customary entrances and from there empties into the [city’s main] conduit [ὁχεταγωγία]” (2.3.21).

But Procopius contradicts himself again here, telling us that “there was a great difficulty regarding water for the people living in this city. For they had neither any spring welling up there, nor water conveyed about the streets by a conduit [ὁχετω]: neither was it stored there in any cisterns; but those very near whose streets the river flowed drew their drinking water without any trouble because of its proximity, those whose homes were very far from the river’s course were obliged to choose one of these two alternatives—either to take a vast deal of trouble in order to obtain drinking water at all, or to perish of thirst” (2.3.24).

Procopius clearly alludes to problems with the availability, and perhaps quality, of water supplies in Dara. Quality may have been an issue because the conduit that carried the river through the middle of the city would have been exposed to contaminating drainage and runoff, creating a high potential for pollution

of drinking water supplies if drawn directly from the river in an urban environment. Drawing water from a diversion *intra muros* would also have been problematic.⁶⁷ (Taking a diversion from the river further upstream, and distributing that water via conduit from a distance, or digging shallow wells near the river to use the substrate as a natural purifier, were all more sanitary alternatives, typical in other Roman cities.) Important to consider in this context, too, is the fact that low-lying areas with poor drainage are historically locations for lower-quality housing at higher risk for flood, with more prestigious residences safe on the hillsides. This was also true in Constantinople, for instance, where water was distributed from the aqueducts at churches and public buildings at the top of hills (like the Holy Apostles) to lesser buildings like private housing below, thereby creating chains of dependency on the water supplies of public institutions and elite residences.⁶⁸

Availability of water at higher elevations was another factor at Dara. Croke and Crow note that the city’s reservoirs and cisterns are on high ground, and consequently river water could not have been used to fill them without sophisticated water-lifting equipment.⁶⁹ These issues of pollution, preferential water supply from aqueducts rather than rivers, the social stratification of drainage zones within cities, and supply availability may thus be implied causes of Procopius’s concern for water shortage in Dara, since he elsewhere praises the availability and utility of the Cordes river for its supply of drinking water. Whatever the cause of water shortage in Dara, Procopius prescribed its solution: the construction of a pipeline aqueduct (ὁχετός) that “led water about to every part of the city, . . . thus relief[ing] the straits of its inhabitants (2.3.25).”

Garbrecht identified a stone-lined conduit in the vicinity of three springs at the village of Aytepe Köy, which ran eight kilometers from the northeast to the higher northwest side of the city walls, where a sluice was identified, and from which point water could indeed have been carried to most places in the city,

66 See the discussion of the contradictions and paradoxes in this passage by E. Turquois, “Technical Writing, Genre and Aesthetic in Procopius,” in *Shifting Genres in Late Antiquity*, ed. G. Greatrex and H. Elton (Aldershot, 2015), 228–30.

67 Note the prescriptions for safely drawing water from rivers and streams into cisterns in D. Clapham, *Small Water Supplies: A Practical Guide* (London, 2004).

68 A. Scobie, “Slums, Sanitation, and Mortality in the Roman World,” *Klio* 68.2 (1986): 399–433, here at 404, for the relationship between social status and the relative elevation and drainage of urban housing.

69 “Procopius and Dara,” 158.

including especially the so-called Great Cistern.⁷⁰ There is no secure archaeological evidence for the date of this installation. However, Zachary of Mitylene and Malalas both attribute the construction of an aqueduct at Dara to Anastasius.⁷¹ Here in Procopius, construction of the aqueduct is linked, ἀλλὰ καὶ, to Justinian's alleged construction of the Great Church and the Church of St. Bartholomew. Thus at the conclusion of his Dara set piece, Procopius circles back to the beginning, where he informed his readers that Justinian's water infrastructure programs at Dara had begun with the construction of reservoirs between walls of the fortifications and near the Church of St. Bartholomew (2.2.1).

Conclusions from Procopius's Account of Dara: Structuring Justinian's Water Management

Procopius's account of Dara is beset with numerous inconsistencies, contradictions, and apparent distortions of fact. Boundaries blur between water disasters and water miracles, positive or negative in effect. Literary precedents and commonplaces for imperial responses to water crises are diverted in unexpected directions.

Solutions to water crises at Dara range, in their organizational dimension, from the extremely local (soldiers digging a well) to divinely inspired solutions directed from the Great Palace at the very highest levels of state. Actors in the middle—bishops, military leaders, and local elites—are conspicuously missing in Procopius's account. Procopius nevertheless makes an important, albeit implicit, first allusion to a relationship between the church and imperial urban water management at Dara, with water storage in cisterns at St. Bartholomew's. Architecturally, solutions to urban water scarcity at Dara range from aqueducts to cisterns and water drawn directly from the river in town, while water protection schemes are described with unusual sophistication and detail.

When compared with their precedents in Roman literature and alternative discourses, it may be observed that Procopius follows the model he established at

Constantinople by treating the subject of water infrastructure and management in a mostly conservative fashion, albeit with the introduction of distinctly novel and incongruous elements or concerns.

Hydraulic Architecture in the *Buildings*

Leaving aside the constraints of Procopius's narrative sequence, we might consider instantiations of water infrastructure in books 2–5 of the *Buildings* as a function of architectural genre, as expressed in table 3.

Rather than analyze each episode sequentially as we did at Dara—for this approach see table 2—what follows below is an assessment of the roles and representations of various types of water infrastructure in the *Buildings*, comparing examples from Procopius's text against both classical and contemporary sources in order to better understand Procopius's perception of water as a component of the Roman urban ideal.

Aqueducts

Procopius describes the construction (12) or restoration (2) of fourteen aqueducts, from which seven localities have systems that are at least in part known archaeologically.⁷² Where components of such aqueduct systems survive, however—as at Trabzon,⁷³ Nicaea,⁷⁴ Antioch,⁷⁵

72 Archaeological remains of aqueduct system components are known from Dara, Antioch, Palmyra, Trabzon, Iustiniana Prima, Heraclea, and Nicaea.

73 The aqueduct at Trabzon is known primarily from its inscription, *CIG* 8696, recording its construction under Justinian with the help of Bishop Ouranios in 542. This is arguably identical with the "Aqueduct of St. Eugenius" noted by Procopius. However, the physical remains of the system are little known; Bryer and Winfield described the Zagnos Köprüsü as possibly part of the former aqueduct; see *The Byzantine Monuments and Topography of the Pontos* (Washington, DC, 1985), 182 and 190. See also A. Vasiliev, "Zur Geschichte von Trapezunt unter Justinian dem Grossen," *BZ* 30 (1930): 385–86.

74 See briefly C. Foss, *Nicaea: A Byzantine Capital and Its Praises* (Brookline, MA, 1996), 13, 159, and 201; an intriguing late medieval/Ottoman aqueduct survives with substantial remains east of Iznik/Nicaea, though it remains unpublished.

75 Procopius gives Justinian credit for laying out Antioch anew "with stoas and market-places, and dividing all the blocks of houses by means of streets, and making water-channels and fountains and sewers" (2.10.22), but Jodi Magness has drawn attention to post-Justinianic coins found under the pavement of Antioch's main street, and suggested that the construction of its latest antique street surface (and thus implicitly its water system) could have occurred only after Justinian's reign; compare J. Lassus, *Antioch*

70 Brands, "Ein Baukomplex in Dara-Anastasiopolis," 151 and G. Garbrecht and A. Vogel, "Die Staumauern von Dara," in *Historische Talsperren*, vol. 2 (Stuttgart, 1991), 264–76, esp. 274.

71 Zacharias of Mitylene, *Historia Ecclesiastica* 7.6, trans. G. Greatrex, *Chronicle of Pseudo-Zachariah*, 247–51 and J. Malalas, *The Chronicle of John Malalas* 17.399, trans. E. Jeffreys, M. Jeffreys, and R. Scott, *Byzantina Australiensia* 4 (Melbourne, 1986), 224.

Table 3. Types and quantities of water infrastructure reported in the *Buildings*.

Type	Quantity		Citations [Places]
	New	Restored	
aqueducts	12	2	2.3.24 [Dara]; 2.5.9–11 [Constantina]; 2.10.19–25 [Antioch]; 2.11.2–7 [Cyrrhus]; 2.11.10–12 [Palmyra]; 3.7.1–4 [Trabzon]; 4.1.17–27 [Iustiniana Prima]; 4.9.14–16 [Heraclea/Silivri]; 5.2.1–5 [Helenopolis, Bithynia]; 5.3.1–3 [Nicaea]; 5.3.16–20 [Pythia/Yalova]; 5.4.15–18 [Mokissos]; 5.9.36 [Cyprus, St. Conon]; 6.2.9–11 [Ptolemais]
baths	10	4	2.8.24 [Zenobia]; 2.10.13–14 [Antioch]; 3.7.18–25 [Anchialus]; 4.10.21 [Chersonesos]; 5.2.3–5 [Helenopolis]; 5.3.1–3 [Nicaea]; 5.3.7 [Nicomedia]; 5.3.16–20 [Pythia]; 5.4.15–18 [Mokissos]; 5.9.34 [Curicum]; 6.1.12–13 [Taphosiris]; 6.2.3–6 [Bernice]; 6.4.11 [Leptis Magna]; 6.5.8–10 [Carthage]
reservoirs	3		2.9.4–9 [Resafa]; 4.2.9–15 [Greece]; 4.8.18 [Athyras]
cisterns	5		2.4.1–13 [Rhabdios]; 2.9.10–11 [Hemerium]; 2.10.13–14 [Antioch]; 4.2.1–8 [Thermopylae]; 5.9.14 [Palestine]
wells	2		2.4.22–4 [Baras]; 5.9.14–22 [Palestine monasteries]
bridges	5	5	2.10.6–8 [Antioch]; 4.6.11–18 [River Ister]; 4.8.10–17 [Rhegium]; 5.2.6–13 [Helenopolis]; 5.3.7 [Nicaea]; 5.3.8–10 [Nicomedia]; 5.4.1–4 [River Siberus]; 5.5.4–7 [Mopsuestia]; 5.5.8–13 [Adana]; 5.5.14–20 [Tarsus]
river management	6		2.6.1–11 [Circesium]; 2.7.1–14 [Edessa]; 2.8.16–25 [Zenobia]; 2.10.6–8 [Antioch]; 4.8.2–9 [Rhegium]; 5.2.6–13 [Helenopolis]
dams	3		2.3.16–23 [Dara]; 2.10.15–18 [Antioch]; 4.2.16–22 [Heraclea]
pollution	–	–	2.9.12–17 [Hierapolis]

or Heraclea⁷⁶—it remains difficult or impossible to definitively connect these remains with the reign of Justinian.

The representation of aqueducts in the *Buildings* is mostly conservative, and accords with precedent

On-the-Orontes, vol. 5, *Les portiques d'Antioche* (Princeton, 1972) with J. Magness, *Archaeology of the Early Islamic Settlement in Palestine* (Winona Lake, IN, 2003), 206–9.

76 At Heraclea Perinthos (mod. Marmaraereğlisi in Thrace), sections of the water system from Çesmeli survive, with at least eleven cisterns and sections of pipe, the latter found near Kabyle. But the extent to which these features can be connected to Justinian is unclear. An older imperial-period epitaph noting the construction of an aqueduct by a military officer at Heraclea Perinthos would probably indicate that, if anything, Justinian's work was limited to repair or restoration of a preexisting Roman system. See R. Ivanov and G. von Bulow, *Thracia: Eine römische Provinz auf der Balkanhalbinsel* (Mainz, 2008), 76 and M. Sayar, *Perinthos-Herakleia (Marmara Ereğlisi) und Umgebung: Geschichte, Testimonien, griechische und lateinische Inschriften* (Vienna, 1998), no. 72 l. 3; and for doubts that this inscription refers to an aqueduct at all, *SEG* 48.906.

urban images from the Roman architectural “toolkit” for urbanism, which magnified the value of aqueducts in introducing abundant water into cities from springs in their hinterlands. *Renovatio imperii* is a consistent theme throughout the *Buildings*, as introduced in the *proemium* of book 5, in which Justinian is credited with “repairing all the parts of cities which had become defective” (5.1), including aqueducts destroyed by “Time, following its custom” (4.9.14). However, despite the undeniable conservatism of Procopius's praise of aqueducts, unusual inclusions stand out from the aggregate fabric of the *Buildings* when compared with the precedents of Roman literature for such structures: (1) the sources of aqueducts; (2) concern for the defensibility of aqueducts, and (3) the relationship of aqueducts to churches.

Procopius evinces a shift in perceptions of the appropriate sources for urban aqueducts, from springs to ground- and rainwater. Spring water was widely perceived to be the most salutary of sources for drinking

water.⁷⁷ Springs were associated with tropes for the health of empire⁷⁸ and emperor⁷⁹ alike after the first century AD.⁸⁰ In the context of aqueducts, Procopius construes superabundance of water positively, in contrast to the maleficent superabundance of floods and torrential downpours. Aqueducts carried “floods of crystal-clear drinking water” (4.9.14–16), in order that cities might be “abundantly supplied with ever-running water” (4.1.17–27) and “ever-flowing fountains” (2.5.11). For Procopius, Justinian thus compares favorably with his predecessors like Hadrian, who “gave his name to aqueducts without number,” or Constantius, who made “waters that had ceased to flow . . . pour forth upon the withered vitals . . . of the exhausted city.”⁸¹ For previous emperors, the lack of spring water induced thirst, which is the motivation attributed to Anastasius for his construction of an aqueduct at Hierapolis, because he could not abide the thought of Roman citizens’ drinking water from cisterns or wells.⁸² Just so, Justinian was led to build an aqueduct for Constantina in Syria, because her citizens “always suffered from thirst and great difficulty of obtaining water” (2.5.9).

77 For example the clear preference for spring water advocated by Hippocrates, *Airs, Waters, Places* 8.8, or Athenaeus, *Deipnosophistae* 2.35A–47E.

78 For instance, the connection between cleanliness and aqueduct functionality is made in the *Speech of Thanks to Julian* by Mamertinus, who wrote that before Julian’s restoration of an aqueduct at Nicopolis “everything was full of dirt and dust since the aqueducts had long since been destroyed” (9.2.4); see C. Nixon and B. Rogers, *In Praise of Later Roman Emperors: The Panegyrici Latini* (Berkeley and Los Angeles, 1994), 408–9.

79 Flavius Cresconius Corippus, *In laudem Iustini Augusti minoris Libri IV*, ed. and trans. A. Cameron (London, 1976), 1.15–51, in which the emperor is “the fertile tree, drinking from the imperial spring. Our Lord and common benefactor is the great spring of the court, the spring that enriches all. . . .”

80 The inscription for an aqueduct built at Kanatha in Syria is dedicated ὑπὲρ σωτηρίας καὶ ὑγείας αὐτοκράτορος Νέρουα Τραϊανοῦ καίσαρος σεβαστοῦ; see SEG 7.977–78 = M. Dunand, “Kanata et Kanaṭha,” *Syria* 11 (1930): 272–79, here at 275–76. J. Moralee discusses this idea, the salutary ideology: see his “For Salvation’s Sake”: *Provincial Loyalty, Personal Religion, and Epigraphic Production in the Roman and Late Antique Near East* (New York, 2004), 50–54.

81 See n. 4 above, and for Constantius, Nixon and Rogers, *Later Roman Emperors*, 154, sec. 4.

82 A. Chauvot, *Procopius de Gaza*, 18–19 for the Greek and 43–44 for the French translation. Compare the similar motivation of thirst for the construction of another aqueduct, probably in the sixth century, by one Georgios at Gortyna on Crete: A. C. Bandy, *The Greek Christian Inscriptions of Crete* (Athens, 1970), 77–78, no. 47.

Elsewhere, Justinian was in fact more permissive and inclusive as regards the sources of water that he tapped for urban supplies. Where Anastasius was allegedly aggrieved by the thought of rain- and groundwater as primary sources of drinking water in cities, Justinian patronized their construction enthusiastically (see more on cisterns and wells below). Aqueducts constructed by Justinian were not universally sourced from springs: at Antioch, Procopius credits Justinian with the construction of a dam, the so-called Iron Gate—which Matthias Döring has demonstrated was originally an early imperial Roman aqueduct bridge fed by the spring at Daphne, which was only secondarily adapted and walled up for use as a dam to collect the rainwater of the seasonal Onopnictes/Parmenios torrent. As Procopius describes it, the early Roman aqueduct was carried over a gravity dam that had at some point been broken by the force of rainwater that collected behind it. Justinian’s engineers constructed sluice gates in this dam to regulate the passage of rainwater through a channel for use inside the city (2.11.15–20). Döring has suggested that the original aqueduct conduit, which led from the springs at Daphne through the Iron Gate’s dam, went out of use either when the dam was broken or when Justinian’s dam was constructed. Either way, Justinian’s dam effectively replaced the source of Antioch’s aqueduct: from an imperial Roman spring to a Byzantine torrent of rainwater.⁸³

At Mesopotamian Dara (2.2.24–25), river water became a viable alternative to spring-water supplies for the city’s aqueduct. While aqueduct intakes were occasionally set up on rivers during the imperial period,⁸⁴

83 See M. Döring, “The Roman Hydraulic Engineering Buildings of Antioch (Turkey),” in *Cura Aquarum in Israel II, Proceedings of the 15th International Conference on the History of Water Management and Hydraulic Engineering in the Mediterranean Region Israel 14–20 October 2012*, ed. C. Ohlig and T. Tsuk, *Schriften der Deutschen Wasserhistorischen Gesellschaft* 21 (Siegburg, 2002), 149–65; also H. Pamir, “Archaeological Research in Antioch on the Orontes and Its Vicinity: 2002–2012,” in *Antioch on the Orontes: Early Explorations in the City of Mosaics* (Istanbul, 2014), 96, and H. Pamir and I. Yamaç, “Antiokheia ad Orontes Su Yollari,” *Adalya* 15 (2012): 33–64. Most recently see A. Eger, “(Re)Mapping Medieval Antioch: Urban Transformations from the Early Islamic to the Middle Byzantine Periods,” *DOP* 67 (2013): 124 n. 141 for evidence of the aqueduct’s continuing functionality in the ninth and tenth centuries.

84 “Surface water, whether from lakes or rivers, was used less often [as the source of aqueducts] than might be expected”; see A. Hodge, *Roman Aqueducts & Water Supply*, rev. ed. (London, 2002), 69.

they were always significantly upstream of the city itself. The situation at Dara is thus unusual, because Procopius describes precisely how water was drawn into pipes or reservoirs from the river inside the city walls rather than through an upstream catchment. A catchment inside the city was undoubtedly more susceptible to urban pollution, besides.

Throughout the *Wars* of Procopius, and following on early Roman precedents, there is a concern for the defensibility of aqueducts, which by the sixth century had become a potential source of weakness and insecurity. During his siege of Carthage, Gelimer “tore down a portion of the aqueduct—a structure well worth seeing—which conducted water into the city,” but presumably because Carthage was also adequately supplied by wells and cisterns, “after encamping for a time they withdrew, since no one of the enemy came out against them” (*Wars* 4.1.1). During the siege of Naples, Belisarius cut the aqueduct without forcing surrender, though the aqueduct’s tunnel was eventually used as an entry point into the fortified city (*Wars* 5.10.1–23), a fact which later famously led Belisarius to block the aqueduct tunnels of Rome as a defensive measure (*Wars* 6.9.1–11).⁸⁵ This same concern for security was a motivating factor in the construction of an aqueduct at Cyrrhus, where pilgrims came to the tomb of SS. Cosmas and Damian. There, because a “steep and altogether impassable area lay between [the spring and the city, . . . citizens] could easily fall into the hands of the enemy . . . so [Justinian] dug a channel outside the city all the way to the spring, not allowing it to be seen, but concealing it as carefully as possible, and thus he provided the inhabitants with a supply of water without toil or risk” (2.11.2–7). Where the striding arches of imperial Roman aqueducts had advertised the path of water entering cities, Procopius’s concern for the visibility and security of urban water supplies is reflected in the widespread late antique practice of replacing highly visible and vulnerable bridge and tunnel systems with buried pipelines. Such considerations should also be related to Procopius’s concern, stated explicitly in his

description of Thessaly, that even in places with “a surfeit of drinking-water . . . the inhabitants . . . could not derive the least enjoyment from these things because they were in a state of constant terror and ever expected the barbarians to fall upon them” (4.3.8).

Procopius alludes to a relationship between churches and aqueducts at Dara and Antioch, where descriptions of the cities’ main conduits or *ὀχεταγωγία* were directly followed by instances of church patronage (where St. Bartholomew’s was outfitted with a large cistern [2.3.24], and at Antioch, where a similar pattern prevailed in the account of Antioch’s churches of St. Michael and the Virgin [2.10.19–25]). Procopius is more explicit when he twice mentions aqueducts named for saints, the St. Conon aqueduct in Cyprus (5.9.36) and the aqueduct of St. Eugenius in Trabzon (3.7.1). In his text, Procopius uses synecdoche to attribute responsibility for the construction of the entire aqueduct construction to Justinian personally, though an inscription from Trabzon for the construction of an aqueduct reveals more specifics, if this is indeed the same project (which is not explicitly named for a saint in the inscription).⁸⁶ Two additional inscriptions from Bosra in Syria record a comparable and contemporary episode of aqueduct repair, with the “generosity of despot Justinian, offered by John of the rank of archbishop,” with the involvement of a silversmith and two other individuals “who provided gold advanced [from the provincial coffers] on behalf of the people.”⁸⁷ By contrast, such middle-range actors as bishops, bureaucrats, and city notables are conspicuously elided from Procopius’s accounts of Justinian’s involvement in aqueduct construction.

85 Cf. the excavations at the American Academy in Rome, which uncovered evidence for blocking of the water channels at the time of the Gothic siege: A. Wilson, “The Water-Mills on the Janiculum,” *Memoirs of the American Academy at Rome* 45 (2000): 219–46, here at 233. Note also the story of Justinian II, after his exile, reentering Constantinople through a water pipe: see A. Berger, trans., *Accounts of Medieval Constantinople: The Patria* 3.79, 178–89.

86 Cf. *SEG* 42.1158 = Ἐν ὀνόματι τοῦ δεσπότης ἡμῶν Ἰησοῦ | Χριστοῦ τοῦ Θεοῦ ἡμῶν · αὐτοκράτωρ | Καῖσαρ Φλ(άβιος) | Ἰουστινιανὸς Ἀλαμανικὸς | Γοθικὸς Φραγγικὸς Γερμανικὸς Ἀν | τικὸς Ἀλανικὸς Οὐανδαλικὸς Ἀφρικὸς | εὐσεβὴς εὐτυχὴς ἐνδοξος νικητὴς | τροπεῦχος ἀεισέβαστος Αὐγουστος | ἀνενέωσεν φιλοτιμίᾳ τὰ δημόσια | κτίσματα τῆς πόλεως σπουδῇ καὶ | ἐπιμελίᾳ Οὐρανίου τοῦ θεοφιλεστοῦ(άτου) | ἐπισκόπου · ἰνδ(ικτιώνος) <ι> > ἔτους υπ’.

87 *IGLSyr* 13/1.9134 = [ἐκ] φιλοτιμίας [τ]ο[ῦ] φιλοχρ[ί]στου ἡμῶ[ν] | δεσπότης Ἰουστινιανῶς, ἀνυσθ(είσης) <δ>ιὰ Ἰωάννου | ἀ<γί>ω(τάτου) μητρο(π)ολίτου, ἐκτίσθη διὰ Δουσαρίου κ(αί) | Ἰοβίου προν(οητῶν) χρυσοχ(όν) προβά(των) παρὸ {παρὰ} τῶν | δημω(τ)ικῶν. ἔτους υλδ’. † and *IGLSyr* 13/1.9129, † ἐκ φιλοτιμ(ίας) τοῦ δεσπ(ότου) Ἰουστινιαν[οῦ] | παρασχηθίστη[ς] ἐκ πρεσβ(ία)ς τοῦ δ(ο)σίου | ἀρχιεπισκ(όπου) Ἰωάννου ἀνηνέωθη ὁ ἀγ[ω] | [γ]ός δ(ιὰ) Ἀναστασίου τῶν Μαρ[.]ας ἀργυρο[ποι]οῦ | — — —.

Even if Procopius's description does not fully account for the sixth-century realities of aqueduct construction and maintenance—the concern with defensibility and alternative sources besides springs, and the increasing involvement of the church in cooperation with local elites—he nevertheless makes gestures toward the larger contemporary situation with the rhetorical tools at his disposal.

Baths

Procopius records fourteen episodes involving the construction (10) or restoration (4) of baths during Justinian's reign. Only two or three of these baths are known archaeologically, though one additional bath attributed to Justinian is known independently from an inscription and substantial remains, at Byllis near Berat in Epirus (mod. Albania).⁸⁸ Procopius explicitly includes baths among those structures "which make a city notable" (4.10.21), and which give "the appearance" or "the mark of a prosperous city" (6.4.11 and 5.2.5). He represents baths—like aqueducts—in a mostly conservative fashion that depends on the traditional Roman model of urbanism, according to which baths are an expected benefit of empire and a mark of the polis (table 4).

But episodes in Procopius concerned with baths and bathing also hint at a changing conception of the bath's role in late antique society. The following issues are pertinent: Christianity, the water supplies of baths, motivations for their construction, state priorities for bathing and bath operation, and architectural or social contexts for bathing during late antiquity.

88 The few baths mentioned by Procopius that are known archaeologically remain difficult to connect with Justinian. For baths at Carthage see n. 100 below. Hadrianic and late Roman baths are known at Leptis Magna: Bartoccini's excavations in the 1920s gave no indication of Justinianic or late antique interventions in his study for the former, while the latter are known only through "an abortive attempt to build" in the third or fourth century; see R. Bartoccini, *Le Terme de Lepcis* (Bergamo, 1929) and G. Sears, *Late Roman African Urbanism: Continuity and Transformation in the City*, BAR International Ser. 1693 (Oxford, 2007), 70–74. Multiphase baths are also known at Palmyra, though Justinian's responsibility for improvements there is entirely insecure; see most recently T. Fournet, "Thermes impériaux et monumentaux de Syrie et du Proche-Orient," *Cahiers de la Villa Kérylos* 23 (2012): 185–246, here at 224–28, with phased plan at fig. 20.

Christianity is perhaps surprisingly not an issue for Procopius,⁸⁹ who shows no concern for the venality of baths, expressed by the church fathers as a vehicle for sensualism and a threat for Christians naked and exposed to pagan idols or demons, or mixed-gender bathing.⁹⁰ Procopius's concern is limited to undue displays of wealth and status in public baths.⁹¹ Indeed, baths in Procopius are at best an urbane enticement for barbarians to convert to Christianity (and become sedentary), another instrument in the author's civilizing project to neutralize foreign peoples living at the edge of the empire.⁹² Baths were constantly desired by the Goths and Persians, as well as the tribal confederations of North Africa.⁹³ Besides their luxury value in a

89 See the debate over Procopius's confessional status in Kaldellis, *Procopius of Caesarea*, 165–72 and Cameron, *Procopius and the Sixth Century*, 113–33.

90 Still fundamental for bathing and baptism, see F. Dölger, *Der Exorzismus im altchristlichen Taufritual* (Paderborn, 1909), 162–64 on the association of demons with water and springs; C. Bonner, "Demons of the Bath," in *Studies Presented to F. Ll. Griffith* (London, 1932): 203–8; and O. Böcher, *Dämonenfurcht und Dämonenabwehr: Ein Beitrag zur Vorgeschichte der christlichen Taufe* (Stuttgart, 1970), 204 and 50–53, on dirty water as a haunt for demons and souls of the dead. Similar attitudes towards baths were also recorded in Anatolia by F. Hasluck before the population exchanges of the nascent Turkish Republic in the 1920s; see his posthumous *Christianity and Islam under the Sultans* (1929; repr. New York, 1973), here at 107–12.

91 Note the story (*Wars* 7.1.39–42) of a conflict between the wives of two Gothic commanders, initiated by social impropriety and undue display of wealth in a bath.

92 See Cameron, *Procopius and the Sixth Century*, 120–25 (n. 15 above) on religious conversion as a prime instrument in foreign policy.

93 Roman-style baths were a prized technology in the courts of neighboring powers; see the incidents concerning Attila and the Sassanian king Balash: for Attila see R. Blockley, ed. and trans., *The Fragmentary Classicising Historians of the Later Roman Empire: Eunapius, Olympiodorus, Priscus and Malchus*, vol. 2, *Text, Translation and Historiographical Works*, ARCA Classical and Medieval Texts 10 (Liverpool, 1983), 265; and for Balash, F. Trombley and J. Watt, trans., *Chronicle of Pseudo-Joshua the Stylite* 19, *Translated Texts for Historians* 33 (Liverpool, 2000), 17 n. 77. Note also that Constantine VII (citing Peter the Patrician) recommended that visiting Persian diplomats should have private hot baths at their disposal: *De ceremoniis* 1.89, trans. A. Moffatt and M. Tall, *Byzantina Australiensia* n.s. 18 (Canberra, 2012), 398–99. Relevant thereby is the fact that first- to fourth-century fortifications on the Persian-Arab frontier frequently featured baths inside castrum walls, while later forts in the same area put baths *extra muros*, probably both for fire protection and so that they could be used as places for diplomacy. Compare for instance the position of baths at the legionary forts of

Table 4. Baths reported in the *Buildings*.

Reference	Place (supply)	New/Restored	Terminology for Bath
2.8.24	Palmyra (aqueduct)	N	λουτρῶνας . . . δημοσίας
2.10.13–14	Antioch (cisterns?)	N	βαλανεία καὶ ὑδάτων
3.7.18–25	Anchialus (hot springs)	N	πηγαὶ θερμῶν . . . βαλανεία
4.10.21	Chersonesos	N	βαλανεία
5.2.3–5	Helenopolis, Bithynia (aqueduct)	N	βαλανεῖον . . . ἐν δημοσίῳ
5.3.1–3	Nicaea, Bithynia (aqueduct)	R	βαλανεῖον ἐν τῷ καταλυτηρίῳ
5.3.7	Nicomedia, Bithynia	R	βαλανεῖον
5.3.16–20	Pythia (hot springs)	R	λουτρῶνα ἐν δημοσίῳ . . . θερμῶν ὑδάτων
5.4.15–18	Mokissos (aqueduct?)	N	λουτρῶνας ἐν δημοσίῳ
5.9.34	Curicum	R	λουτρὸν [καὶ?] πτωχεῖον
6.1.12–13	Taphosiris	N	λουτρῶνας
6.2.3–6	Berenice	N	βαλανεῖον . . . δημοσία
6.4.11	Leptis Magna	N	λουτρῶνας ἐν δημοσίῳ . . . βαλανεῖοις
6.5.8–10	Carthage	N	βαλανεῖον ἐν δημοσίῳ
	14 locations	10 N/4 R	5 λούτρα / 9 βαλανεία / 2 πηγές θερμῶν

courtly context, Procopius tells us that at Leptis Magna, “by means both of the baths [βαλανεῖοις] and of all the other improvements [Justinian] gave it the character of a city. The barbarians who live close by, those called Gadabitani, who up to that time were exceedingly addicted to what is called the Greek form of atheism, he has now made zealous Christians” (6.4.11). In this fashion Procopius connects baths with other features of cities important to the broader civilizing, Christianizing project of late antique Roman emperors.

A city’s desire for bathing facilities was a primary motivating factor in the construction of aqueducts during the imperial period,⁹⁴ but Procopius also alludes to rainwater supplies for new baths on the hills around

Antioch, describing them in relation to cisterns that were built into the fortifications (2.10.13–14). This reflects an increasing tendency for late antique baths to economize their water consumption, including drawing water from sources alternative to aqueducts.⁹⁵ While smaller baths proliferated in late antique cities, large *thermae* complexes were modified so as to operate under straitened circumstances with less water and

Azraq or El Lejjun, with their *extra muros* position in the early Islamic *qasrs*; see D. Kennedy, *The Roman Army in Jordan* (London, 2004), 57–62 or 157, or O. Grabar et al., *City in the Desert: Qasr al-Hayr East* (Cambridge, MA, 1978).

94 “The normal reason an aqueduct was built was to supply baths”; see Hodge, *Roman Aqueducts & Water Supply*, 5.

95 Cf. the late Republican Stabian baths in Pompeii, where the bath’s original well-water supply was modified so as to take water from an aqueduct in the early imperial period; or the fifth-century baths at Syrian Androna, which operated for at least two centuries from well water raised with a *noria*; for the Stabian baths see I. Nielsen, *Thermae et Balnea* (Aarhus, 1990), 1:23, and for Androna M. Mango, “Baths, Reservoirs and Water Use at Androna in Late Antiquity and the Early Islamic Period,” in *Residences, Castles, Settlements: Transformation Processes from Late Antiquity to Early Islam in Bilad al Sham* (Damascus, 2008), 73–81.

fuel,⁹⁶ or appropriated for new uses entirely.⁹⁷ The Antonine Bath at Carthage is a good case in point. If the identification is correct, this immense complex was damaged by Gelimer in the fifth century (*Wars* 4.1.1), and according to the *Buildings*, subsequently repaired by Justinian (6.5.8–10). After its restoration, the βαλανεῖον ἐν δημοσίῳ was “named Theodoriana, after the Empress,” replacing its earlier dedication to Hadrian.⁹⁸ Archaeological evidence also points to an orderly contraction of this bath’s water supplies sometime between 533 and 548: the aqueduct and baths were both repaired, but the supply of the Antonine baths was diminished, and modified so as to draw from two cisterns rather than directly from the aqueduct.⁹⁹

96 For instance the Bath-Gymnasium Complex at Sardis in Lydia, where the south wing of the palestra became a synagogue in the later third or early fourth century, before the installation of smaller hip-baths in the frigidarium; see F. Yegül, *The Bath-Gymnasium at Sardis*, Archaeological Exploration of Sardis Report 3 (London, 1986), 15–16 and 72–73. The forthcoming study by B. Bricker also addresses measures undertaken to conserve water around the late Roman baths at Sardis: “Development, Delights, and Display in the Hydraulic Landscape of Sardis,” in *De Aquaeductu Atque Aqua Urbium Lyciae Pamphyliae Pisidiae*, Proceedings of the International Congress on the History of Water Management and Hydraulic Engineering in the Mediterranean Region, Antalya 31 October–9 November 2014, *BABESCH* suppl. 27 (Leuven, 2016).

97 Cf. Anemurium in Cilicia, whose large imperial-style bath was converted to housing and industry in the later fourth century, while a smaller bath that operated until the mid-seventh century was newly built just a hundred meters to its east; see J. Russell, *The Mosaic Inscriptions of Anemurium*, ÖAW Phil.-Hist. Kl. Denkschr. Bd. 190 = Ergänzungsbände zu den Tituli Asiae Minoris Nr. 13 (Vienna, 1987), 21–22.

98 *CIL* 8.12513.

99 Lézine and Wilson have dated repairs to the Antonine bath between 533 and 548, at which time the aqueduct at Carthage was restored, and its source was fortified for protection; see A. Lézine, *Les thermes d’Antonin à Carthage*, Société Tunisienne de Diffusion (Paris, 1969), 40, and most recently Y. Thébert, *Thermes romains d’Afrique du Nord et leur contexte méditerranéen*, BEFAR 315 (Rome, 2003), 140–43; for the broader context of the bath–aqueduct relationship at Carthage between the second and seventh centuries see A. Wilson, “Water Supply in Ancient Carthage,” in *Carthage Papers: The Early Colony’s Economy, Water Supply, A Public Bath, and the Mobilization of State Olive Oil*, ed. J. Peña et al., JRA Suppl. 28 (Portsmouth, RI, 1998), 65–102. The streets and sewers of Carthage continued to be repaired well into the seventh century, before the aqueduct was presumably cut again in the siege of 698. At some point, possibly during the seventh century, one section of the Antonine baths became a setting for the production of pottery, with the installation of kilns.

Another Justinianic bath drawing its water economically, from cisterns, is known at Byllis in Epirus. This bath was never mentioned by Procopius, but according to an unpublished inscription it was funded by Justinian.¹⁰⁰ The smaller row-type bath (24.5 × 6.4 m) was equipped with a very modest two-room hypocaust and no frigidarium, and took its water from a large cistern (50.9 × 4.2 × 5.6 m, 1200 m³)—of originally Hellenistic construction, supplied by rainwater—that was constructed under the city stadium’s south side and maintained in late antiquity.¹⁰¹

Natural hot or thermal springs were another alternative to aqueducts for the supply of baths. The subject of hot springs has lately been dominated by Dvorjetski, who has concentrated her attention on shifting cultural attitudes towards the therapeutic value of hot springs in the Levant during late antiquity.¹⁰² Dvorjetski’s moralizing approach—focused on inconsistencies in the testimonies of churchmen and rabbis who simultaneously disapproved of public bathing in the nude but themselves participated, coincident with the gradual Christianization of pagan hot spring sites—overlooks the importance of thermal-spring baths as a less costly, naturally occurring supply of heat and water, the advantages of which increasingly shaped settlement patterns and hierarchies in late antiquity.¹⁰³ Besides

100 Feissel, “Les édifices de Justinien,” 92 (n. 22 above) notes that this inscription, a mutilated epigram, remains unpublished; see the provisional French translation offered by N. Ceka and Skënder Muçaj, *Byllis: Histoire et monuments* (Tirana, 2009), 35: “De Justinien (le dominateur), très puissant, (...), je suis le bain, (construction?), utile; (...) mais (je porte le nom) de celui (...) qui (...) par-dessus tout le monde (...).”

101 As regards the issue of supply to the cisterns via rainwater or inverted-siphon aqueduct to Byllis, we should note the presence of stone-carved inverted siphon blocks next to the church just west of the stadium, which could suggest the existence of a pressure-fed pipeline system in the hilltop city, of unknown date. This aqueduct/water system remains to be thoroughly investigated.

102 E. Dvorjetski, *Leisure, Pleasure and Healing: Spa Culture and Medicine in Ancient Eastern Mediterranean*, Supplements to the Journal for the Study of Judaism 116 (Leiden, 2007), esp. 393–424 for late antiquity.

103 For instance, note settlement nucleation from surrounding communities towards water-blessed Tiberias, which was famed for its hot springs as well as its location on the freshwater sea or lake Galilee; Tiberias was also equipped with a spring-fed aqueduct that was maintained and extended well into the early Islamic period. See D. Stacey, *Excavations at Tiberias, 1973–1974: The Early Islamic Periods*, IAA Reports n.s. 21 (Jerusalem, 2004), 3–10.

palatial embellishment for the use of the imperial court at the famous hot springs of Pythia, with construction of a church and an aqueduct for drinking water (5.3.16–20), Procopius also describes Euxine Anchialus in some detail (3.7.18–25). Here, in modern Bulgaria on the Black Sea, there was an unfortified place (χωρον ἀτείχιστον) near which bubbled up natural baths of hot water, “though such a host of barbarians dwelt nearby; and sick persons used to visit the place, gaining relief at the cost of danger. Therefore the Emperor Justinian made it a walled city, as it now is, and thus made the cure free from danger.” In fact, Anchialus had long been a city, fortified and refortified multiple times, with a bishop since the second century, and it continued to be a flash point in conflicts with neighboring polities in subsequent centuries.¹⁰⁴ Leaving the distortion aside, Procopius recognized Justinian’s elevation of a village and thermal spring to city-status, and in so doing aggrandized an important shift in settlement patterns that was otherwise unrecognized by contemporary sources. According to this pattern, opportunities for bathing gradually shifted away from expensive, artificially heated and watered baths in cities to locations naturally blessed with abundant supplies of hot spring water. Several of these locations became important thematic centers and capitals after the seventh century.¹⁰⁵

Besides shifting norms for the water supply of baths, we should also note a contextual shift for bathing in Procopius: Procopius maintains the traditional

Roman focus on emperors who are concerned with public baths as the “marks of a prosperous city,”¹⁰⁶ but the author is also explicitly concerned that baths are made accessible to nonresident patrons like traveling officials and magistrates;¹⁰⁷ private persons visiting without bureaucratic status, like pilgrims and the sick;¹⁰⁸ and foreign tribes living outside cities.¹⁰⁹

Changing state priorities for baths are distinctly less visible in Procopius than they are in the contemporary *Codex Iustinianus*, the *Digest*, and *Institutes*, particularly when the Justinianic rescripts and opinions are compared with those added, omitted, or modified from the earlier *Codex Theodosianus*, or the later *Basilica*. For instance, a rescript issued in 415 prohibited installing in baths any statues of gods to whom sacrifice had been made;¹¹⁰ another advised that prisoners using public baths were to be transported under guard;¹¹¹ several others dealt with local situations such as the tax-funded maintenance or operation of baths in Rome and Antioch. None of these were reenacted in Justinian’s sixth century, arguably an index of their comparative unimportance at that time.¹¹²

Concerns for the financial arrangements of baths and surrounding properties were more frequent. A survey of the relevant legal literature, for instance, reveals that a rescript issued by Arcadius in 395, which “set aside the third part of the income from the public lands for the repair of public buildings and baths,” was reenacted in both the sixth-century *Codex Iustinianus* and

104 See S. Vailhé, “Anchialos,” in *Dictionnaire d’histoire et de géographie ecclésiastiques*, ed. A. Baudrillart, vol. 2 (Paris, 1914), 1511–13 and V. Gjuzev, “Anchialos zwischen der Spätantike und dem frühen Mittelalter,” in *Die Schwarzmeerküste in der Spätantike und im frühen Mittelalter*, ed. R. Pillinger, A. Pülz, and H. Vetters, Schriften der Balkan Kommission antiquarische Abteilung n.s. 18 (Vienna, 1992), 23–33.

105 Besides Euxine Anchialus, other important examples of thermal spring-bath sites elevated to the status of polis with a bishop during late antiquity include Therma/Myrikion in Galatia (elevated after the fifth century, see *TIB* 4:208); Basilica Therma/Sarikaya in Cappadocia (elevated as late as 451, see *TIB* 2:157); Dorylaeum/Eskişehir in Phrygia, the center of Artabasdu’s revolt against Constantine V in 741/42; and Germia in Phrygia (elevated after the mid-seventh century; see *TIB* 7:238–42). Germia lacked an adjoining settlement but was nevertheless elevated to the status of autocephalous bishopric in the mid-seventh century, see most recently P. Niewöhner et al., “Bronze Age Höyüks, Iron Age Hilltop Forts, Roman Poleis and Byzantine Pilgrimage in Germia and Its Vicinity: ‘Connectivity’ and a Lack of ‘Definite Places’ on the Central Anatolian High Plateau,” *AnatSt* 63 (2013): 97–136.

106 An explicitly public-use bath is described at Berenice, Procopius, *Buildings* 6.2.3–6, βαλανεῖον . . . δημοσία παρεχόμενον τῇ πόλει τὴν χρεῖαν; and for a bath with poorhouse at Curicum, 5.9.34.

107 Lodgings for magistrates and the *veredarii* (imperial couriers) are associated with baths for magistrates at Helenopolis in Bithynia, 5.2.4–6, and in Taphosiris, 6.1.12–13; baths associated with *veredarii* at Nicaea in Bithynia, 5.3.1–3, for whom see A. Silverstein, *Postal Systems in the Pre-Islamic World* (Cambridge, 2007), 38.

108 The infirm are associated with thermal baths at Anchialus on the Euxine, whose status was elevated to city under Justinian, 3.7.18–25; and at Pythia/Yalova in Bithynia, 5.3.16–20; guest houses are associated with baths at Chersonesos, 4.10.1–23.

109 Immediately after describing the construction of baths at Leptis Magna, Procopius tells us that the Gadabitani were converted to Christianity and neutralized; see above and *Buildings* 6.4.11.

110 *CTh* 16.10.20.3.

111 *CTh* 9.3.7.

112 For Rome see *CTh* 14.5; and for Antioch *CTh* 12.1.131.

the *Basilica*,¹¹³ while an earlier rescript funding public baths from farmland belonging to the municipality was omitted from later redactions.¹¹⁴ Another rescript in 417, which was not repeated thereafter, prohibited burdening cities with tax to cover the cost of heating private baths for all counts and officials excepting *illustri* and *magistri militum*,¹¹⁵ but an entitlement for the cost of lighting in such baths was maintained.¹¹⁶ Other repetitions were specific to Constantinople, but may have served as precedents elsewhere: one rescript ordered that the rents of houses and workshops in the porticoes of the Zeuxippus Baths were to be allocated for the maintenance of public baths.¹¹⁷ This would indicate that encroachment of housing or workshops on a bath's porticoes—as for instance also in the houses erected in the Verulanus porticoes of the Harbor Baths at Ephesos, with exceedingly high quality construction and decoration¹¹⁸—was an accepted fact in the sixth century, one that carried only an obligation to manage and profit from rents on public property.

Elsewhere, wholly new additions to the Justinianic legislation show how the state's concerns shifted toward the oversight of baths operated by nonstate actors like the church¹¹⁹ or private individuals, and contracted for public use: namely, payment of contractors repairing furnaces and pipes,¹²⁰ damages claimed by municipal authorities in the event that a private bath contracted for public use has burned down and become inaccessible,¹²¹ prohibitions against a usufruc-

tuary's setting up a public bath on leased properties,¹²² structural considerations for building rooms above or next to a bath,¹²³ and terms for the arbitration of investor conflicts.¹²⁴ While the state has codified procedures for privately maintained, publicly accessible baths in the provinces, water rights for private baths in the capital have become the object of increasing preoccupation, marked during Justinian's reign by an annulment of all inherited private rights to water for baths in Constantinople.¹²⁵

Despite these important omissions, Procopius nevertheless points obliquely toward a reorientation of values or priorities concerned with public bathing as a cultural practice leading up to the author's sixth century.

Reservoirs, Cisterns, and Wells

Procopius ennobled the humble cistern. By including the Basilica Cistern alongside more obvious targets for imperial patronage in Constantinople, such as churches, Procopius elevated water storage installations to a status completely without precedent in Roman literature. Following two centuries of sometimes grandiose nonimperial cistern and reservoir construction in Constantinople (e.g., the three great reservoirs of Aetius, Aspar, and Mocius), Justinian's involvement in cistern and reservoir construction marks imperial encroachment into a genre of architectural patronage that had previously been the preserve of lower elites.¹²⁶ Further, urban water conservation rather than conspicuous consumption (a recognition of resource scarcity), and investment in standing rather than flowing waters,

113 *CTh* 15.1.32 = *CIC CI* 8.11.11 = *Basilika* 58.12.11; references to the *Basilika* (hereafter *Bas.*) come from *Basilicorum libri LX*, ed. H. Scheltema and N. van der Wal (Groningen, 1953–88).

114 *CTh* 15.1.32.

115 *CTh* 7.11.

116 *CTh* 7.11.1 = *CIC CI* 1.47 = *Bas.* 6.1.98.

117 *CTh* 15.1.52 = *CIC CI* 8.11.19 = *Bas.* 58.12.

118 Contra F. Yöğül (*Baths and Bathing in Classical Antiquity* [Cambridge, MA, 1995], 313), who calls Verulanus in late antiquity “a small and shabby residential district,” see the marvelous results of the recent Austrian excavations directed by S. Ladstätter and H. Schwaiger: “Ephesos,” *Wissenschaftlicher Jahresbericht des Österreichischen Archäologischen Instituts* (Vienna, 2012), 23–27 with ground plan and photographs.

119 The Pragmatic Sanction gave bishops formal responsibility for urban water infrastructure including baths: *CIC Nov* 149.2 under Justin in AD 569 = *Bas.* 6.3.44.14; a similar order was issued earlier by Justinian from Chalcedon in 530: *CIC CI* 1.4.26.

120 *CIC Dig* 19.2.58 = *Bas.* 20.1.58.

121 *CIC Dig* 19.2.30 = *Bas.* 20.1.30.

122 *CIC Dig* 7.1.12.8 = *Bas.* 16.1.13.

123 *CIC CI* 8.10.1 = *Bas.* 58.11.1 and *CIC Dig* 8.2.13 = *Bas.* 58.2.13, both the opinions of third-century jurists.

124 *CIC CI* 8.10.5, a repetition of an opinion issued in 290.

125 *CIC CI* 11.42/43.6 = *Bas.* 58.19.6.

126 For Constantinopolitan reservoirs and cisterns see primarily R. Janin, *Constantinople Byzantine: Développement urbain et répertoire topographique* (2nd ed., Paris, 1964), 198–215 for the literary accounts; also P. Forchheimer and J. Strykowski, *Die byzantinischen Wasserbehälter von Konstantinopel*, *Byzantinische Denkmäler* 2 (Vienna, 1893); J. Crow, J. Bardill, and R. Bayliss, *The Water Supply of Byzantine Constantinople*, JRS Monograph no. 11 (London, 2008), 125–56; and most recently K. Altuğ, “Planlama İlkeleri ve Yapım Teknikleri Açısından Tarihi Yarımada'daki Bizans Dönemi Sarnıçları,” *Restorasyon Konservasyon Çalışmaları* (Oct.–Dec., 2012): 3–22 for a new distribution map and typology.

had not previously been traditional targets for imperial architectural patronage.

In the *Buildings*, we can also observe important diversions from Roman precedents for imperial water management, insofar as cisterns and reservoirs (1) have become a kind of public architecture, (2) are associated with peacetime imperial patronage, and (3) portended a curious conflict between perceptions of omnipotent imperial power and the reality of resource scarcity in areas of strategic importance. These are highly significant facts, considering that Justinian's predecessor Anastasius was so "pained [ἐλόυπει]" to hear of the "calamity" of city-dwellers' drinking rainwater from cisterns in Jerusalem that he was motivated to build an aqueduct.¹²⁷

Cisterns and reservoirs were traditionally *not* included among the standard forms of public architecture praised by authors who were influenced by Second Sophistic traditions for the Roman urban image: namely walls, aqueducts, baths, and temples or churches. The exclusion of cisterns and reservoirs is to some degree a consequence of their low visibility; context is important to consider in this respect. Whereas small-scale cisterns for rainwater collection were a standard feature in Roman houses, they were not institutionalized or entered and experienced like public architecture; rather water was drawn from them with a rope and bucket dropped down through a curbstone. On the other hand, late antique cisterns became public architecture of an entirely new type: immense and accessible vaulted spaces like basilicas or hypostyle halls, with narrow stairs at the ends that could be descended by just a few persons at a time. Where Roman cisterns in North Africa and Anatolia were barrel-vaulted and divided by walls, cisterns in the late antique Eastern Mediterranean became aisled and vaulted columnar

spaces like hypostyle halls or basilicas, sometimes decorated with inscriptions or statues of donors.¹²⁸

The perceived inferiority of cisterns, and the aspersions cast on them by Roman authors, are part of a nearly hegemonic hierarchy of water's potability from spring- and rain- or groundwater sources, as related by ancient medical writers and cultural commentators: springs were better than wells or groundwater, and running water was preferable to standing.¹²⁹ Cisterns could fail on both counts. Sources perceived as inferior to aqueduct-fed spring water were acceptable for soldiers and in military contexts but were inappropriate as primary water supplies for cities in peacetime, especially if provided by an imperial patron, for whom the only acceptable response to urban water shortage was, traditionally, the construction of an aqueduct.

Comparing the contexts in which cisterns at Dara are represented in sources besides Procopius will help make this point.

Evagrius Scholasticus provides a peacetime context for the development of Dara. He writes, "Now, after this war Anastasius established Dara, a place in Mesopotamia situated at the extremity of the Roman realm which is a boundary-marker, as it were, for the two states; he turned this from field into a city, fortifying it with a strong circuit wall and bestowing on it various remarkable constructions; not only churches and other sacred buildings, but colonnades and public baths and other things with which distinguished cities are adorned."¹³⁰ Anastasius "turned [Dara] from a field into a city." Evagrius leans on a more traditional Roman image of cities, and consequently fails to mention cisterns. This evasive pattern holds elsewhere as well; additional examples could be cited.¹³¹

128 For cistern inscriptions see for instance *SEG* 48.1867 from Resafa, or *SEG* 31.1475 from Madaba. For the statues of Aetios or Longinus/Justinian at their reservoir and cistern, respectively, in Constantinople see nn. 135–136 and 140 below.

129 For references to medical opinions that favored running water from springs see n. 78 above.

130 Evagrius Scholasticus, *Ecclesiastical History* 3.37, trans. M. Whitby (Liverpool, 2000), 182.

131 References to cisterns are basically absent in the imperial histories of authors like Tacitus or Ammianus Marcellinus; they emerge only later in association with the urban elite during the fifth century in the chroniclers, like Marcellinus (for years 407 and 421), and with churchmen in monastic accounts (*Lausiac History*, Pior 4), before taking on imperial associations as here in the *Buildings* after Justinian's sixth century.

127 Procopius of Gaza, *Panegyric for Anastasius* 18, ed. and trans. A. Chauvot, *Procopius de Gaza* (n. 43 above), 18–19 (Greek) and 43–44 (French trans.). On the identification of Hierapolis with Jerusalem, rather than Hierapolis in Phrygia or Cilicia, see the mostly convincing argument of C. Jones, "Procopius of Gaza and the Holy City," *GRBS* 47 (2007): 455–67. Note too the presence of the inscription at Bethlehem, dated to the reign of Anastasius and repeating the prohibition of *CTh* 15.2.1 = *SEG* 8.171. It is probably not Phrygian Hierapolis (mod. Pamukkale), but Cilician Hierapolis cannot be ruled out.

Malalas, on the other hand, describes Anastasius's patronage of cisterns at Dara in the context of storage efforts during the emperor's wartime campaign against the Persians, as part of the fortification of a "powerful stronghold [ὄχυρόν]," outfitted with abundant grain and water. Malalas tells us that "Anastasios immediately fortified Dara, a place in Mesopotamia, as a very large and powerful stronghold, lying between the Roman and Persian frontiers. In it he built two public baths, churches, colonnades, warehouses for storing grain and cisterns for water [κιστέρνας ὑδάτων]."132

Procopius also identifies Justinian's cistern construction at Dara in this broader wartime context of the Persian campaigns. And in the rest of the *Buildings*, Procopius generally follows the more normative, conservative precedent image of emperors building cisterns only in military contexts: the author places Justinian's cisterns and reservoirs at locations that are explicitly identified as fortifications (e.g., Thermopylae), or fortified *refugia* (e.g., Rhabdios or Hemerium), or as urban staging grounds on a wartime frontier (e.g., Antioch and Dara). Construction of cisterns and reservoirs at monasteries (e.g., 5.9.14) also fits this characterization: monks were soldiers for Christ in the ultimate war, the good fight against sin and the devil. Consumption of very little or inferior water from wells and cisterns was a mark of asceticism and self-denial.¹³³

It is in this peacetime context, then, that Procopius's narrative of Justinian's involvement at the Basilica Cistern becomes especially important. In Constantinople, cistern and reservoir construction was normally initiated by patricians and urban prefects until Justinian, when such constructions also became an imperial prerogative.¹³⁴ We know from Malalas and

the *Chronicon Paschale* that the urban prefect Longinus began work on the Basilica Cistern, but Procopius gave credit to Justinian.¹³⁵ A statue known to have stood above the reservoir in the Basilica's courtyard could hypothetically be identified, from its original dedication, as a representation of either the urban prefect Longinus or the emperor Justinian; the *Patria* preferred the identification with Justinian.¹³⁶

The frequency of nonimperial cistern and reservoir construction in Constantinople in the two centuries preceding Justinian reflects their popularity as a space for patronage and competition among the elite for water storage in the water-scarce capital. Whether these structures were at the service of larger, state-directed water management needs for distribution or consumption in public areas or served as terminal neighborhood reservoirs under the control of their patrons remains unclear.¹³⁷ In the Roman imperial period, monumentally scaled cisterns were more typically used as *castella* or intermediate distribution points, outside cities.¹³⁸

and abbot Constantine. For the inscription found on the wall of the Nea cistern see *SEG* 27.1015 = ed. pr. N. Avigad, *IEJ* 27 (1977): 145–51: Κ(αὶ) τοῦτο τὸ ἔργον ἐφιλοτιμήσατο ὁ εὐσεβ(έστατος) ἡμῶν βασιλεὺς Φλ(άουιος) Ἰουστινιανὸς προνοή(σας) Κ(αὶ) σπουδὴ Κωνσταντίνου | ὁσιωτά(του) πρεσβ(υτέρου) Κ(αὶ) ἡγουμέ(νου) ἰνδ(ικτιῶνος) ιγ' τ'; see also Cyril of Scythopolis, *Life of Sabas*, trans. R. Price, *Lives of the Monks of Palestine*, Cistercian Studies 114 (Kalamazoo, 1991), 186, chap. 73 = E. Schwartz, *Kyrrillos von Skythopolis*, TU 49 (Leipzig, 1939), 177.15, in which Justinian "ordered the treasury officials of Palestine to provide money for the building; while assigning the overall authority to Archbishop Peter, he charged Bishop Barachus of Bacatha with the supervision of the building works."

135 On this see Crow, Bardill, and Bayless, *The Water Supply of Byzantine Constantinople*, 17–18; with *Chronicon Paschale* 284–628 AD ann. 528, trans. M. Whitby and M. Whitby, *Liverpool Translated Texts for Historians* 7 (Liverpool, 1989), 110 or Malalas, *The Chronicle of John Malalas* 18.482, 286.

136 Berger, *Accounts of Medieval Constantinople* 2.40, 74–75 (n. 86 above).

137 For Constantinopolitan reservoirs and cisterns see n. 126 above.

138 The Roman reservoirs of North Africa were located outside the cities, rather than *intra muros* as becomes more typical of large reservoirs and cisterns in the late antique Eastern Mediterranean. The former installations were truly *castella*, used indirectly for the technical process of water distribution, but not directly for withdrawal and the satisfaction of daily water needs in an urban context, at least as originally intended. Their architectural form is nevertheless relevant, with access stairs on the interior for cleaning and maintenance that compare well with the primary access arrangements for later examples.

132 *The Chronicle of John Malalas* 16.399, 224.

133 For instance, P. Brown recounts how the ascetic renouncers who followed Amun into the Egyptian desert hermitages at Kellia and Nitria "burrowed into the depressions among the dunes, to form a series of tiny man-made oases, each with its own well, dug into the brackish water that seeped erratically beneath the sands from Lake Maroetis"; see *The Body and Society: Men, Women, & Sexual Renunciation in Early Christianity*, 2nd ed. (New York, 2008), 215, and on Manichean ascetics' self-denial of water, 202.

134 Apart from the water-economizing reservoirs described in the *Buildings* at Constantinople, Resafa, and Athyras, Justinian's involvement with reservoir construction is also attested independently at the Nea in Jerusalem, unmentioned by Procopius but monumentally huge, and embellished with an inscription that names the emperor as its patron, in association with the presbyter

By contrast, the increased tendency to use reservoirs as terminal places of direct withdrawal and consumption inside cities is visible in the archaeological record for late antiquity. Late antique structures were also more likely to be associated with the names of patrons, and were sometimes embellished with inscriptions or even statues identified as portraits of the donor. Besides the Basilica Cistern, such a statue is also recorded in the *Patria* to have stood at the fifth-century Aetios Reservoir, for its eponymous patron, a competitor of Valentinian who was eventually executed for unnamed crimes.¹³⁹ In my opinion, reservoirs in Constantinople should be compared with neighborhood terminal reservoirs in the provinces, where they are typically situated next to large houses, churches, or baths, or other administrative structures. There, cisterns and reservoirs more plainly served a competitive function, as a means of accruing resources and power by creating water dependencies in the surrounding neighborhood, where ramified pipe-delivery systems gradually carried water to fewer consumers. This pattern may in fact be visible in Constantinople, where the *Patria* records the frequent relationship of elite houses to cisterns or baths in association with the names of particular quarters of the city.¹⁴⁰

Similarly, in the provinces, cisterns were never patronized by emperors until Justinian, but they were suitable forms of architectural patronage for middle-range local elites like bishops: this is why pseudo-Zachariah the Rhetor gushes to tell of “wonderful cisterns in the city of Dara that received water” in the context of bishop Thomas’s intervention for the money

and good will of emperor Anastasios.¹⁴¹ Epigraphy and literary sources attest to the widespread involvement of bishops in the construction of hydraulic infrastructure, including cisterns and reservoirs, well before Justinian’s rescript of AD 530 officially gave responsibility for urban water infrastructure maintenance to the local bishop and three leading men (*virī bonae/τρεῖς τῶν εὐπολέπτων*).¹⁴² Proconsuls and prefects may also have been responsible for cistern and reservoir construction in provincial cities, though their involvement is less apparent from the epigraphic record, where bishops and other churchmen are more visible.

One component of imperial disdain for cistern- and reservoir-water should be sought in their relation to notional concepts of resource scarcity and abundance. In book 1, Procopius describes how the Basilica Cistern was constructed with economizing measures taken to preserve the overflow from the Hadrianic aqueduct. We see the same motivation emerging from Procopius’s treatment of Athyras, in Thrace, later in the *Buildings*: Justinian built “a reservoir there, in which by storing at just the right time the unnecessary excess of water, he dispensed it as needed to the inhabitants” (4.8.18). Because Procopius elsewhere mostly stuck to traditional models of abundant aqueduct supplies for cities, he may have surprised his readers when he made Justinian out to be an arbiter of water conservation practices unheard of at the level of imperial patronage. Justinian became, effectively, the late antique water equivalent of Jimmy Carter encouraging Americans to consume less and wear sweaters to save heating gas. The new motif of economization is blended back into that of abundance, however, in the description of Resafa, where a rain-fed system of cisterns built by Justinian “stored up a great quantity of water [ὕδατων θησαυρίσας . . . ἐσκευάσατο] and thus provided inhabitants with a bountiful

139 Aetios was executed after unspecified crimes against the state, and remembered by Procopius as “one of the last of the Romans,” *Wars* 3.3.15. See Berger, *Accounts of Medieval Constantinople* 2.70, 98–99 and quoting here from *ODB*, s.v. Aetius, 1:31. Note also that the *Chronicon Paschale* records that “water was let into the cistern of the lady Pulcheria Augusta” in 421, which is one conceivable adventure in imperial cistern-building before Justinian, though the translators note that the author probably confused this with the cistern of Aetius, finished this same year: see Whitby and Whitby, *Chronicon Paschale* ann. 421, 68 n. 227.

140 For instance see Berger, *Accounts of Medieval Constantinople* 3.83–84, 180–81 for the cistern of Bonus, “his house was there,” during the reign of Heraclius (610–641); *ibid.*, 3.141, Berger 198–99 for τὰ Γερμανοῦ, the house of Germanus which was built during the reign of Valentinian I or Gratian (364–75 or 375–83) and later converted into a bath; *ibid.*, 3.197, Berger 218–19 for τὰ Σμάραγδες with bath during the reign of Tiberius I (578–82).

141 Zachariah of Mytilene, *Historia Ecclesiastica* 7.6, 247–51: “While King Kavadhh was fighting with the Tamorâyê and other enemies of his country . . . [the emperor Anastasius gave gold to bishop Thomas for management of construction projects in the city.] A large bath and a spacious storehouse were built, and an aqueduct that came to the outskirts of the mountain, and wonderful cisterns in the city that received the water. And persons to hasten the work were frequently sent from the king to the bishop, and they all brought back excellent reports of his integrity and justice to the king; and he was greatly pleased with the man.”

142 *CIC CI* 2.1.4.26.

supply" (2.9.6–7).¹⁴³ Despite their traditional inferiority in the hierarchy of urban water sources, by emphasizing Justinian's foresight in pursuit of economization, Procopius renders cisterns and reservoirs a positive if unorthodox tool with which emperors could create abundance from scarcity.

We see elsewhere in the *Buildings* how cisterns and wells have become important to the imperial project. At Antioch, one of the five largest cities in the sixth-century empire, "Justinian built baths and cisterns on these hills inside the city-wall. He dug a cistern in each tower, remedying by means of rainwater the shortage of water which had previously existed there" (2.10.14). Outside of Antioch, Procopius narrates the completion of projects at *phrouria* that functioned as *refugia* for local populations in times of duress, and which provided water derived from sources other than an aqueduct or springs: at Rhabdios (2.4.1–13), cistern construction coincided with the erection of fortifications, with channels for rainwater "dug . . . into the rock in many directions." At the mountainside fort of Baras (2.4.22–24), Procopius describes with great elaboration the following instructions given by Justinian: "He bade them dig within the fortifications until they came approximately to the level of the plain. And when this work was completed according to the Emperor's instructions, water was found there, contrary to all expectation, running in from the spring." This is, of course, a rather circuitous description of a well, dug down to the level of the water table.

Because Procopius writes so disdainfully about wells and cisterns in the *Secret History* 26, echoing the complaints of conservative Romans before him, we should consider that his praise for reservoirs, cisterns, and wells in the *Buildings* was a tactful way of drawing attention to what he saw as a fundamental transformation of the polis and the empire's relationship to water, or expectations of its abundance. Nevertheless, Procopius considerably expanded older topoi concerned with the palette of water architecture projects befitting an emperor's attention, elevating the prestige accorded to reservoirs and cisterns by associating them

with the same quality of abundance that so defined the water supply projects of previous emperors, and which had previously been limited to aqueducts.

This was no mere rhetorical invention of Procopius, but arguably reflects real changes of priority at the imperial level that elevated the status of ground- and rainwater sources: Justinian is also attributed with the installation of the Holy Well in the baptistery of Hagia Sophia (with the stone wellhead, where Christ met the Samaritan woman, brought from Palestine), and an explicitly rainwater-fed cistern richly decorated with carved animals for the exclusive use of clerical ablutions in that church's south aisle.¹⁴⁴ Justinian's innovations persisted, or at least became commonly accepted, because his successors¹⁴⁵ (and neighboring caliphs¹⁴⁶) were similarly concerned with reservoir and cistern construction.

River Management: Bridges, Dams, and Drainage

The *Buildings* of Procopius says:

There is a river in Galatia which the natives call Siberis. . . . This river often rose suddenly to a great height and caused the death of many of those traveling that way. The Emperor was disturbed when these things were reported to him, and he put a stop to the evil thenceforth by bridging the river with a strong structure capable of resisting the stream when in flood, and by adding another wall in the form of a jetty on

144 See Berger, *Accounts of Medieval Constantinople* 4.22 and 4.26, 260–67 for the Holy Well and the water installations at Hagia Sophia, attributed here to Justinian's original construction and embellishment of the church.

145 *Chronicon Paschale* ann. 609, trans. Whitby and Whitby, 148 for construction of cisterns at the Church of the Forty in Constantinople by Phocas in 609. The *Patria*, later in the eighth century, identified Anastasius as the unlikely patron of the Mocius cistern: see Berger, *Accounts of Medieval Constantinople* 3.83–84, 180–81. According to the *Vita Basilii*, Basil recognized that Constantinople's suburb of Hiereia "suffered from scarcity of clear drinking water" and "created a reservoir for abundant and continuous water supply"; see I. Ševčenko, ed. and trans., *Chronographiae quae Theophanis Continuati nomine fertur Liber quo Vita Basilii Imperatoris Amplectitur* 92.14–23, CFHB 42 (Berlin, 2011), 300–303.

146 For Hisham's (r. 724–43) building reservoirs and subterranean conduits on the hajj route to Mecca see Ali ibn al-Husain al-Masudi, *Les prairies d'or*, ed. and trans. C. Barbier de Meynard (Paris, 1861–77), 5:466.

143 The reservoirs project at Resafa is firmly connected by epigraphy to a local bishop, see *SEG* 48.1867, and most recently T. Ulbert, "Einige Überlegungen zu Buch II, Syrien," in *De aedificiis: Le texte de Procope et les réalités, Antiquité Tardive* 8 (2000), 137–47, here at 143–46.

the eastward side of the bridge; such a thing is called a *promachon*, or a breakwater, by those skilled in these matters. He also built a church to the west of the bridge to be a refuge for travelers in the winter season.¹⁴⁷

Procopius's passage follows a rhetorical model familiar from other episodes in the *Buildings*, and from earlier Roman panegyrics for imperially directed construction. It begins with the emperor's gaining knowledge or foresight of catastrophe, owing to his concern "for the safety of the state." Justinian responds to disaster, past or impending, quickly and efficiently. He organizes skilled labor and marshals resources from afar in his palace at Constantinople. Using the classical language of patronage, and in synecdoche for a whole network of laborers, Justinian is inscribed as the patron of all the work and resources invested in monumental construction. The power to divert or control rivers—marked by a monumental physical signifier, whether a simple wooden cross or architecture like bridges or dams and dikes—is a standard trope in both hagiography and imperial panegyric, but hagiographers contemporary with Procopius employed a very different, decidedly less architectural toolkit for the same effect, namely to ensure the safety of life at the crossing.

The life of Theodore of Sykeon, written perhaps fifty years after Procopius's *Buildings*, presents a very different solution for the same problem on the same river, if not the very same crossing. The hagiographer, making no reference to any bridge built by Justinian, says:

The river Siberis, as it ran through the village of Sykeon, passed close to the cornfields and was undermining the arable land and little by little carrying away much of the soil; so the Saint, trusting fully in God, came and ordered the river in the name of Christ to change its bed and no longer approach the cornfields. After planting a wooden cross and offering a prayer, by the grace of God he induced the river to quit

those fields. In the same river several men had met a violent death when crossing it, so this ever memorable man went right into the middle of the river at the spot where the accident had occurred and by offering fervent prayer to God he, by the mercies of Christ, made the river, from that time forth, always safe and easy to cross.¹⁴⁸

In this passage, Theodore's piety and knowledge of God supersede human *tekne* and architectural responses to uncontrollable water or weather. The author is at pains to stress the physicality of the miracle with the motif of the saint's staff, which left a permanent, physical monument on the landscape in the form of the tree, and also that the chief benefit of this miracle was utility and *philanthropeia*—the proper result of classical *euergetism*—precisely as also in Procopius. Owing to the visibility of church involvement in infrastructure like bridges, one might suppose that hagiography in fact served as a rationalization or aetiology for these wider, evolving patterns of investment in areas that were traditionally state prerogatives.¹⁴⁹

Such overlapping approaches reveal the formation of alternative discourses offering different solutions to the same problems of empire, and underline the conservatism of Procopius's reliance on normative Roman standards, which called for a representation of Justinian as an emperor engaged in massively scaled landscape transformations, helping to constitute the imperium which he claimed. Indeed, Procopius tells us (4.2.11–12) that Justinian was capable of the "the most striking union of the most opposite elements"—like earth

147 Procopius, *Buildings* 5.4.1–4. Peter Brown's "Chorotope: Theodore of Sykeon and His Sacred Landscape," in *Hierotopy: The Creation of Sacral Spaces*, ed. A. Lidov (Moscow, 2006), 120 indicates that traces of this bridge were found in the course of the Tahirler Project survey, though they were not included in the fourth season's report (2001), accessible at <http://courses.washington.edu/tahirler/reports.html>.

148 Translation from E. Dawes and N. Baynes, *Three Byzantine Saints: Contemporary Biographies Translated from the Greek* (Crestwood, NY, 1977), sec. 45, pp. 120–21; see also A. J. Festugière, ed. and trans., *Vie de Théodore de Sykéon*, *Subsidia hagiographica* 48 (Brussels, 1970), 2:43, sec. 45. The anti-interventionist, anti-architectural *mentalité* evinced in the story of St. Theodore is more explicitly stated by Gregory of Nyssa, *Life of Gregory the Wonderworker*, trans. M. Slusser (Washington, DC, 1998), 66–69.

149 For instance an inscription built into a bridge at Temelli records its construction by a Bishop Paul: see S. Mitchell, *Regional Epigraphic Catalogues of Asia Minor II: The Ankara District, the Inscriptions of North Galatia*, BIAA Monograph 4 = BAR International Series 135 (Oxford, 1982): #226; Foss identified this Paul as the same bishop who ordained Theodore of Sykeon as bishop of Anastasiupolis around 580, see "Late Antique and Byzantine Ankara," *DOP* 31 (1977): 59.

and water—“which are thus forced to yield to man’s skill and to bow to his superior power.” Bridge and dam construction are obvious manifestations of this power; episodes of repairs to fortifications frequently also included the diversion of rivers near towns. On the seasonally flooded river Dracon outside of Helenopolis in Bithynia, Procopius describes a larger, more complex, and multicomponent intervention into the entire rivershed, which included forest and marsh clearance to facilitate the river’s flow-through, hill leveling and river diversion, construction of new wagon-roads, and the erection of two bridges (5.2.10–13).

But a distinct pragmatism has also crept into the *Buildings*. For instance, at Bizana in Armenia, Procopius tells us that “nothing was done by this Emperor” (3.5.13): he describes how “there are many pools of standing water there,” making it “very open to the enemy’s attack, [and] most unhealthy for the inhabitants.” The drainage problems made building fortifications impossible, so Justinian “pass[ed] over this town” and resettled its inhabitants nearby. Similarly, the two towns of Photike and Phoinikē in Epirus “stood on low-lying ground and were surrounded by stagnant water,” of which on account of poor drainage Justinian “reasoned that it was impossible for walls to be built about them”; he built *phrouria* on nearby hills instead (4.1.37–38).

Contemporary sources elsewhere also point to a shift in procedure and attitudes, with less programmatic, more arbitrary and reactive imperial interventions in river management, specifically on the Maeander plain. Feissel draws our attention to an important inscription, discovered at Didyma, that records Justinian’s rescript issued in response to a petition concerning the tax status of alluvial land around Miletus.¹⁵⁰ The citizens of Didyma, a *kome* upgraded to the status of polis and renamed Iustinianoupolis between 527 and 533, successfully appealed to the emperor to have the burden of their own tax assessment (61 *solidi*) transferred to territories belonging to Miletus. Specifically, they suggested that this sum be taken from “the places which have been turned into land by the Maeander River, having previously been sea,” which “have now become

subject to taxation.”¹⁵¹ In the context of the Maeander delta’s continuous augmentation, Thönemann reads this action as “simply not covered by the existing legislation at all;”¹⁵² rather this was “an ad hoc judgment,” “determined entirely by the accidents of local petition and imperial patronage.”¹⁵³

Pollution

Procopius’s framework for water management was statist or top-down, and driven by infrastructural problems of water shortage and superabundance. The problem of pollution exposes the weakness of this approach in exclusion, leaving Procopius at a loss for options. In the second book of the *Buildings*, Procopius begins to tell of Justinian’s successful efforts at managing polluted urban water at Syrian Hierapolis, a clean lake source corrupted by dumping garbage and washing, but the author unexpectedly trails off mid-sentence (2.9.12–17). Was this section left unfinished, or was the problem of urban pollution simply beyond the author’s ken?

Military zones could be regulated more directly than towns, inasmuch as soldiers could be ordered not to use rivers upstream of urban areas as latrines, for instance.¹⁵⁴ And it was common advice in tactical literature that latrines belonged outside camp perimeters, or that horses were to be watered downstream from settlements.¹⁵⁵ But urban pollution was more difficult from a state perspective, because the inhabitants of cities were more difficult to control. Procopius shows an awareness of pollution as a vector of disease, but he offers no solutions. This is arguably because industrial

151 Ibid., 298–99: Τῶν ἀπογεωθέντων ὑπὸ τοῦ Μεάνδρου ποταμοῦ, ἵς τὸν ἐμπροσθεν χρόνον θαλαττίων ὄντων (II. 61–62) . . . ὑποφόρων δὲ γενομένων . . . (11–12).

152 The legislation in question is Gaius’s doctrine of accretion and *CIC Nov 20* (AD 440), which do not distinguish between short- and long-term changes in river alluviation, but rather are concerned with the back-and-forth of property boundary-line changes along changing rivers; they order that alluvial lands made arable by luck or labor are not subject to taxation, presumably so as to limit frequent changes to cadasters. See P. Thönemann, *The Maeander Valley: A Historical Geography from Antiquity to Byzantium* (Cambridge, 2011), 312.

153 Ibid., 314.

154 *CTh* 7.1.13 = *CIC CI* 12.35.12.

155 On military awareness of the effects, but not the precise cause, of water-source pollution, see J. Haldon, *Critical Commentary on the Taktika of Leo VI*, DOS 44 (Washington, 2014), 256, citing also older sources like Vegetius, *Epitoma* 3.2.12.

150 D. Feissel, “Un rescrit de Justinien découvert Didymes,” *Chiron* 34 (2004): 285–363.

by-products and biological contamination are less susceptible to architectural or physical intervention in the environment, after the fact. The state never sought to impose itself on polluting activities or behaviors in relation to water sources. Rather, it provided procedure for private citizens seeking damages against one another: legislation in the sixth century concerned itself with the corruption of private wells *quod vi* (the forcible or secretive change of another's property)¹⁵⁶ and damages for private springs polluted by fulleries or industrial activities nearby.¹⁵⁷

Conclusions:

Characterizing Water in the *Buildings*

The authority and credibility of the *Buildings* is not predicated upon the reliability of individual sections, but rather upon its literary innovations and shortcomings, which bear witness to a period of decisive change in the way that Romans perceived the proper management of water. Procopius's representations of water infrastructure and management stand apart from Roman precedents or contemporary sources: the *Buildings* remains superficially conservative insofar as it adopts Roman paradigms of water's shortage or abundance into the genre of panegyric. But upon closer inspection, Procopius's text reveals itself as an index of evolving water management behaviors and attitudes, long in motion, which were not begun but merely formalized during the reign of Justinian. The

Buildings absolutely creaks with the irreconcilability of sixth-century reality and the language and concepts of Roman panegyric inherited by Procopius, both of which constrained the ideological limits of his representations of water, and by admixture of genres provided him with space for innovations that reflected real changes in imperial attitudes to older Roman cities and water management practices. These innovations may have unnerved Procopius's fellow cultural conservatives, whether or not this was intended by the author. In this light, the oddities of water's representations for sixth-century Constantinople in book 1 read as introductory billboards, advertising the incongruities that follow in the rest of the work. These incongruities are not isolated or arbitrary, as Cameron postulated,¹⁵⁸ but rather stand as a cohesive body of literary evidence. Whether or not we read the *Buildings* as wholly supportive of Justinian's regime, à la Cameron, or conversely like Rousseau and Kaldellis as subversive, we should acknowledge that the *Buildings* is in fact deeply reflective of the changed *character* and *perception* of water infrastructure and management in Roman cities during Procopius's sixth century.

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156 *CIC Dig* 43.24.11 = *Bas.* 58.23.11.

157 *CIC Dig* 39.3.3 = *Bas.* 58.13.3.

158 Cameron, *Procopius and the Sixth Century*, 86.